Service Manual

Paper Feeder

PF 420

First Edition
Date: 04-08-2009
3MHSM060

Triumph-Adler

Service Manual

Paper Feeder

PF 420

First Edition
Date: 04-08-2009
3MHSM060

CAUTION

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

It may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for proper disposal.

ATTENTION

IL Y A UN RISQUE D'EXPLOSION SI LA BATTERIE EST REMPLACEE PAR UN MODELE DE TYPE INCORRECT. METTRE AU REBUT LES BATTERIES UTILISEES SELON LES INSTRUCTIONS DONNEES.

Il peut être illégal de jeter les batteries dans des eaux d'égout municipales. Vérifiez avec les fonctionnaires municipaux de votre région pour les détails concernant des déchets solides et une mise au rebut appropriée.

Revision history

Revision	Date	Replaced pages	Remarks

This page is intentionally left blank.

Safety precautions

This booklet provides safety warnings and precautions for our service personnel to ensure the safety of their customers, their machines as well as themselves during maintenance activities. Service personnel are advised to read this booklet carefully to familiarize themselves with the warnings and precautions described here before engaging in maintenance activities.

Safety warnings and precautions

Various symbols are used to protect our service personnel and customers from physical danger and to prevent damage to their property. These symbols are described below:

⚠**DANGER:** High risk of serious bodily injury or death may result from insufficient attention to or incorrect compliance with warning messages using this symbol.

⚠**WARNING:** Serious bodily injury or death may result from insufficient attention to or incorrect compliance with warning messages using this symbol.

⚠**CAUTION:** Bodily injury or damage to property may result from insufficient attention to or incorrect compliance with warning messages using this symbol.

Symbols

The triangle (△) symbol indicates a warning including danger and caution. The specific point of attention is shown inside the symbol.

General warning.

Warning of risk of electric shock.

Warning of high temperature.

⃠ indicates a prohibited action. The specific prohibition is shown inside the symbol.

General prohibited action.

Disassembly prohibited.

● indicates that action is required. The specific action required is shown inside the symbol.

General action required.

Remove the power plug from the wall outlet.

Always ground the copier.

1.Installation Precautions

⚠WARNING

- Do not use a power supply with a voltage other than that specified. Avoid multiple connections to one outlet: they may cause fire or electric shock. When using an extension cable, always check that it is adequate for the rated current. .....

- Connect the ground wire to a suitable grounding point. Not grounding the copier may cause fire or electric shock. Connecting the earth wire to an object not approved for the purpose may cause explosion or electric shock. Never connect the ground cable to any of the following: gas pipes, lightning rods, ground cables for telephone lines and water pipes or faucets not approved by the proper authorities. .....

⚠CAUTION:

- Do not place the copier on an infirm or angled surface: the copier may tip over, causing injury. .....

- Do not install the copier in a humid or dusty place. This may cause fire or electric shock. .....

- Do not install the copier near a radiator, heater, other heat source or near flammable material.

  This may cause fire. .....

- Allow sufficient space around the copier to allow the ventilation grills to keep the machine as cool as possible. Insufficient ventilation may cause heat buildup and poor copying performance. .....

- Always handle the machine by the correct locations when moving it. .....

- Always use anti-toppling and locking devices on copiers so equipped. Failure to do this may cause the copier to move unexpectedly or topple, leading to injury. .....

- Avoid inhaling toner or developer excessively. Protect the eyes. If toner or developer is accidentally ingested, drink a lot of water to dilute it in the stomach and obtain medical attention immediately. If it gets into the eyes, rinse immediately with copious amounts of water and obtain medical attention. .....

- Advice customers that they must always follow the safety warnings and precautions in the copier's instruction handbook. .....

2.Precautions for Maintenance

⚠WARNING

- Always remove the power plug from the wall outlet before starting machine disassembly. .....

- Always follow the procedures for maintenance described in the service manual and other related brochures. .....

- Under no circumstances attempt to bypass or disable safety features including safety mechanisms and protective circuits. .....

- Always use parts having the correct specifications. .....
- Always use the thermostat or thermal fuse specified in the service manual or other related brochure when replacing them. Using a piece of wire, for example, could lead to fire or other serious accident. .....

- When the service manual or other serious brochure specifies a distance or gap for installation of a part, always use the correct scale and measure carefully. .....

- Always check that the copier is correctly connected to an outlet with a ground connection. .....
- Check that the power cable covering is free of damage. Check that the power plug is dust-free. If it is dirty, clean it to remove the risk of fire or electric shock. .....

- Never attempt to disassemble the optical unit in machines using lasers. Leaking laser light may damage eyesight. .....

- Handle the charger sections with care. They are charged to high potentials and may cause electric shock if handled improperly. .....

⚠CAUTION

- Wear safe clothing. If wearing loose clothing or accessories such as ties, make sure they are safely secured so they will not be caught in rotating sections. .....

- Use utmost caution when working on a powered machine. Keep away from chains and belts. .....

- Handle the fixing section with care to avoid burns as it can be extremely hot. .....
- Check that the fixing unit thermistor, heat and press rollers are clean. Dirt on them can cause abnormally high temperatures. .....

- Do not remove the ozone filter, if any, from the copier except for routine replacement. .....

- Do not pull on the AC power cord or connector wires on high-voltage components when removing them; always hold the plug itself. .....

- Do not route the power cable where it may be stood on or trapped. If necessary, protect it with a cable cover or other appropriate item. .....

- Treat the ends of the wire carefully when installing a new charger wire to avoid electric leaks. .....

- Remove toner completely from electronic components. .....

- Run wire harnesses carefully so that wires will not be trapped or damaged. .....

- After maintenance, always check that all the parts, screws, connectors and wires that were removed, have been refitted correctly. Special attention should be paid to any forgotten connector, trapped wire and missing screws. .....

- Check that all the caution labels that should be present on the machine according to the instruction handbook are clean and not peeling. Replace with new ones if necessary. .....

- Handle greases and solvents with care by following the instructions below: .....
  · Use only a small amount of solvent at a time, being careful not to spill. Wipe spills off completely.
  · Ventilate the room well while using grease or solvents.
  · Allow applied solvents to evaporate completely before refitting the covers or turning the power switch on.
  · Always wash hands afterwards.

- Never dispose of toner or toner bottles in fire. Toner may cause sparks when exposed directly to fire in a furnace, etc. .....

- Should smoke be seen coming from the copier, remove the power plug from the wall outlet immediately. .....

3.Miscellaneous

⚠WARNING

- Never attempt to heat the drum or expose it to any organic solvents such as alcohol, other than the specified refiner; it may generate toxic gas. .....

This page is intentionally left blank.

CONTENTS

1-1 Specifications

1-1-1 Specifications 1-1-1
1-1-2 Parts names 1-1-2
1-1-3 Machine cross section 1-1-3

1-2 Installation

1-2-1 Installation environment 1-2-1
1-2-2 Unpacking 1-2-2
(1) Unpacking 1-2-2
(2) Remove the tapes and spacer 1-2-3
1-2-3 Installing the cassette heater (option) 1-2-4

1-3 Maintenance Mode

1-3-1 Maintenance mode (operation panel is a 7-segment type) 1-3-1
(1) Executing a maintenance item 1-3-1
(2) Maintenance mode item list 1-3-2
(3) Contents of maintenance mode items 1-3-3
1-3-2 Maintenance mode (operation panel is an LCD type) 1-3-13
(1) Executing a maintenance item 1-3-13
(2) Maintenance mode item list 1-3-14
(3) Contents of maintenance mode items 1-3-15

1-4 Troubleshooting

1-4-1 Paper misfeed detection 1-4-1
(1) Paper misfeed indication 1-4-1
(2) Paper misfeed detection conditions 1-4-1
(3) Paper misfeeds 1-4-3
1-4-2 Self-diagnosis 1-4-6
(1) Self-diagnostic function (operation panel is a 7-segment type) 1-4-6
(2) Self diagnostic codes (operation panel is a 7-segment type) 1-4-6
(3) Self-diagnostic function (operation panel is an LCD type) 1-4-7
(4) Self diagnostic codes (operation panel is an LCD type) 1-4-7
1-4-3 Image formation problems 1-4-8
(1) The leading edge of the image is consistently misaligned with the original. 1-4-8
(2) The leading edge of the image is sporadically misaligned with the original. 1-4-8
(3) Image center does not align with the original center. 1-4-8
1-4-4 Electric problems 1-4-9
1-4-5 Mechanical problems 1-4-11

1-5 Assembly and Disassembly

1-5-1 Precautions for assembly and disassembly 1-5-1
(1) Precautions 1-5-1
1-5-2 Paper feed section 1-5-2
(1) Detaching and refitting the feed roller 1-5-2
(2) Detaching and refitting the cassette separation pulley 1-5-3
(3) Detaching and refitting the cassette forwarding pulley and cassette paper feed pulley 1-5-5

2-1 Mechanical Construction

2-1-1 Mechanical construction 2-1-1

2-2 Electrical Parts Layout

2-2-1 Electrical parts layout 2-2-1
(1) PWBs 2-2-1
(2) Switches and sensors 2-2-2
(3) Others 2-2-3

2-3 Operation of the PWBs

2-3-1 Cassette main PWB 2-3-1

2-4 Appendixes

List of maintenance parts 2-4-1
Periodic maintenance procedures 2-4-1
Wiring diagram 2-4-2

1-1-1 Specifications

Paper supply method	Friction retard method
Paper weight	64 to 105 g/m^2
Paper types	Standard, recycled
Paper size	A3, B4, A4, A4R, B5, B5R, A5R, Folio, Ledger, Legal, OficioII, Letter, LetterR, StatementR, 8K, 16K
Paper capacity	300 sheets (80 g/m^2)
Power source	Electrically connected to the machine.
Dimensions	568 (W) x 546 (D) x 135 (H) mm 22 3/8" (W) x 21 1/2" (D) x 5 5/16" (H)
Weight	6 kg/13.2 lbs

NOTE: These specifications are subject to change without notice.

1-1-2 Parts names

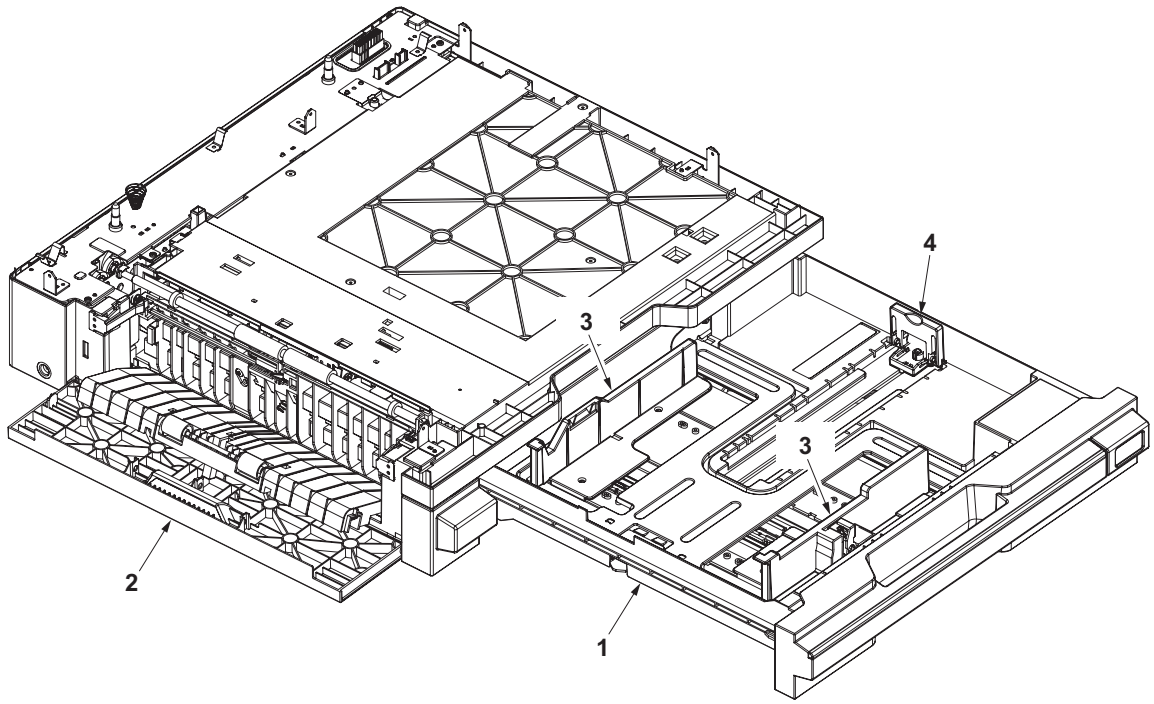


Figure 1-1-1

1. Cassette
2. Cassette left cover
3. Paper width guides
4. Paper length guide

1-1-3 Machine cross section

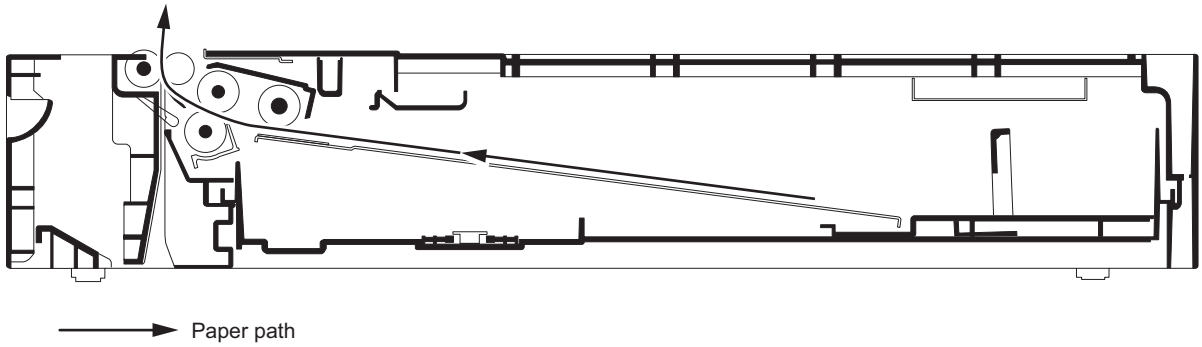


Figure 1-1-2 Machine cross section

This page is intentionally left blank.

1-2-1 Installation environment

Installation location (Be based on the machine establishment place.)

Avoid direct sunlight or bright lighting. Ensure that the photoconductor will not be exposed to direct sunlight or other strong light when removing paper jams.

Avoid locations subject to high temperature and high humidity or low temperature and low humidity; an abrupt change in the environmental temperature; and cool or hot, direct air.

Avoid places subject to dust and vibrations.

Choose a surface capable of supporting the weight of the machine.

Place the machine on a level surface (maximum allowance inclination: 1°).

Avoid air-borne substances that may adversely affect the machine or degrade the photoconductor, such as mercury, acidic of alkaline vapors, inorganic gasses, NOx, SOx gases and chlorine-based organic solvents.

Select a well-ventilated location.

1-2-2 Unpacking

(1) Unpacking

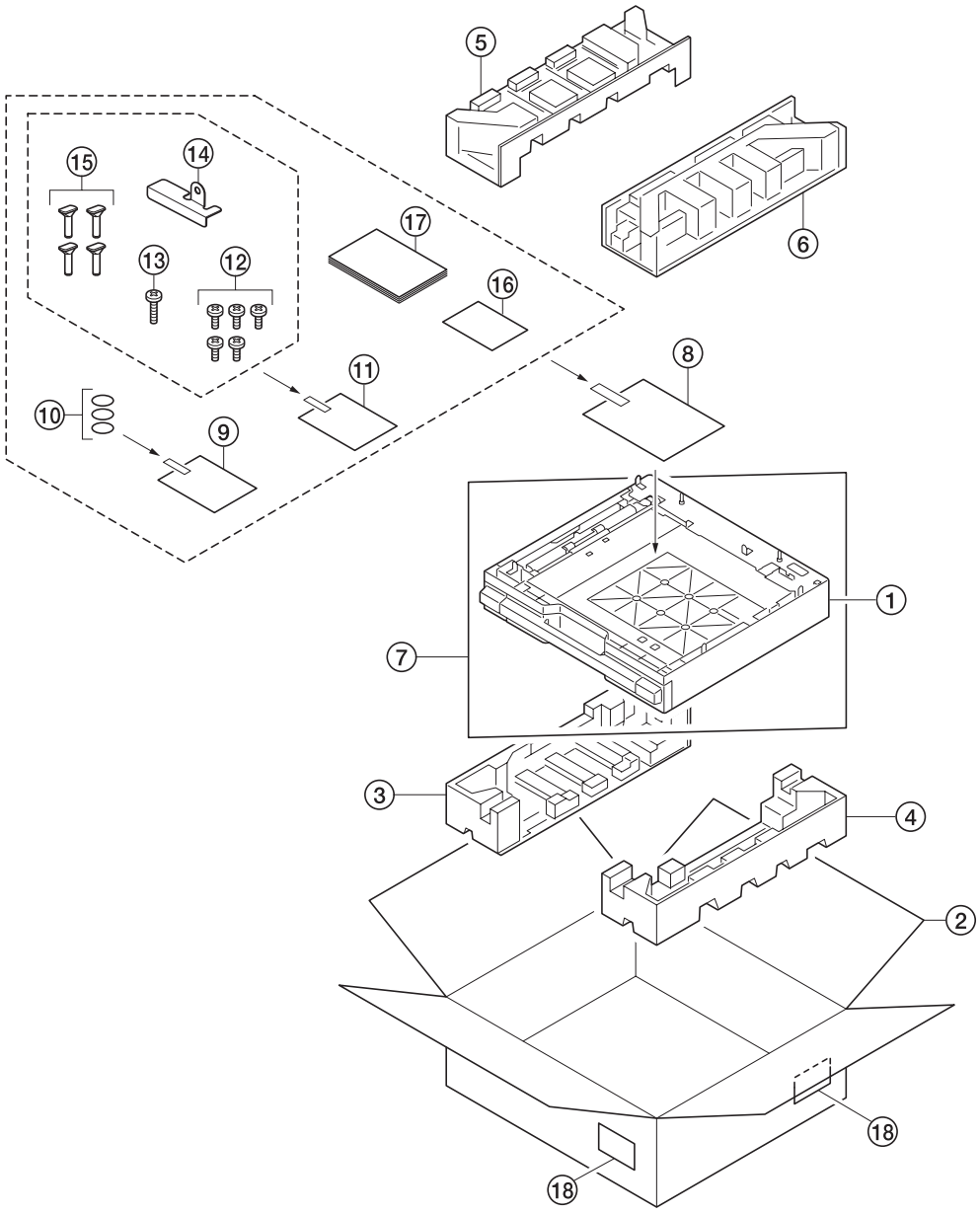


Figure 1-2-1 Unpacking

1. Paper feeder
2. Outer case
3. Bottom left pad
4. Bottom right pad
5. Top left pad
6. Top right pad
7. Plastic sheet
8. Plastic bag
9. Plastic bag
10. Cover labels
11. Plastic bag
12. Screw M3 x 8
13. Screw M3 x 12
14. Connector cover
15. Cursor pins
16. Cassette size label
17. Installation guide
18. Bar code labels

Caution: Place the machine on a level surface. See the Installation Guide for installation.

(2) Remove the tapes and spacer

Procedure

1. Remove two tapes.
2. Remove the spacer.

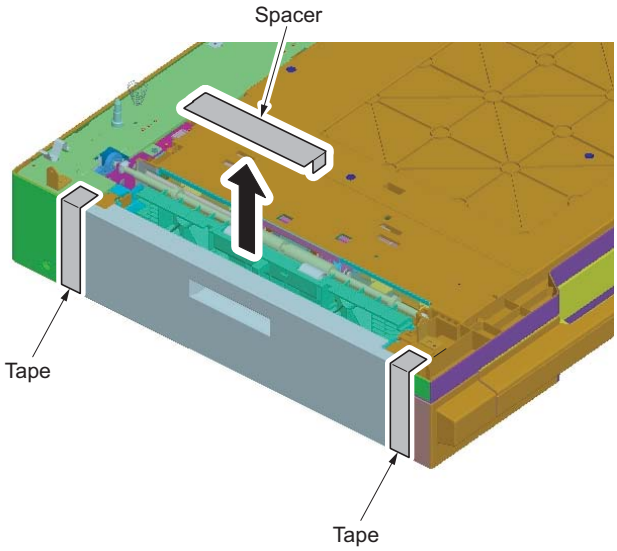


Figure 1-2-2

3. Pull the cassette out and remove the tape.
4. Push the cassette back in.

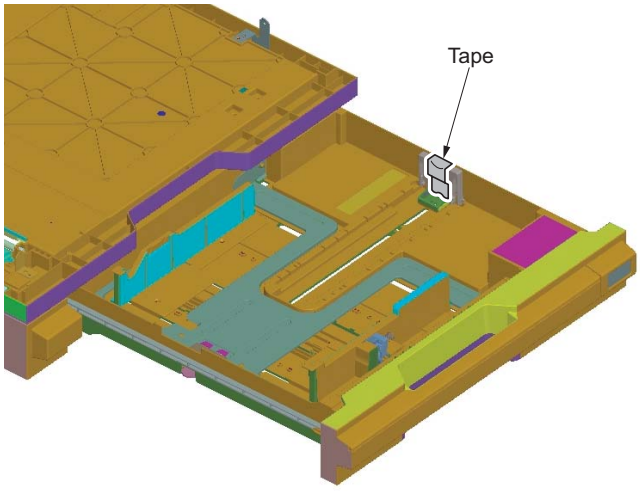


Figure 1-2-3

1-2-3 Installing the cassette heater (option)

Installing the cassette heater requires the following component:
Cassette heater (P/N 303MH94060): for 220 to 240 V specifications only
Cassette heater (P/N 303MH94050): for 120 V specifications
One (1) M3 x 8 P tight screw (P/N 7BB202308H)

Procedure

1. Remove the screw and the pin and then remove the cassette rear cover.
2. Pull out the cassette.

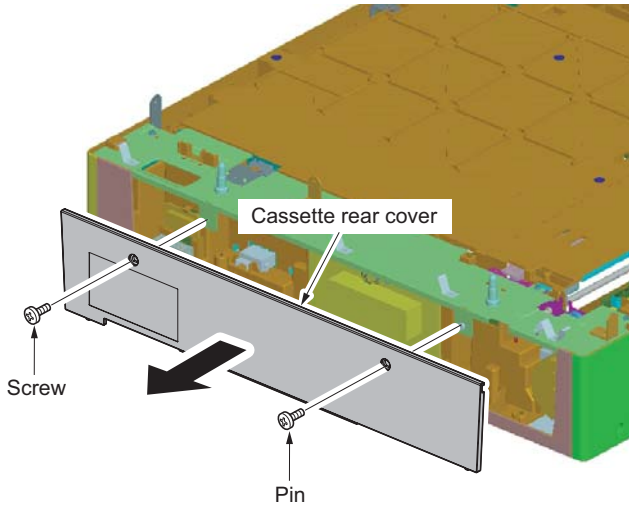


Figure 1-2-4

3. Pass the cassette heater cable through the hole at the machine rear side.
4. Insert the stay of the cassette heater into the hole at the machine rear side.
5. Attach the cassette heater using the M3 x 8 P tight screw.

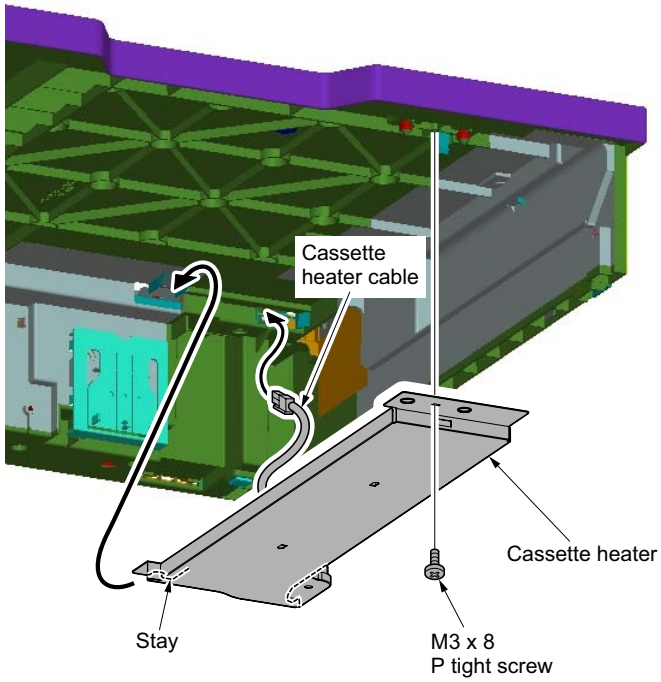


Figure 1-2-5

6. Connect the connector of the cassette heater cable to the connector of the machine.
7. Refit all the removed parts.

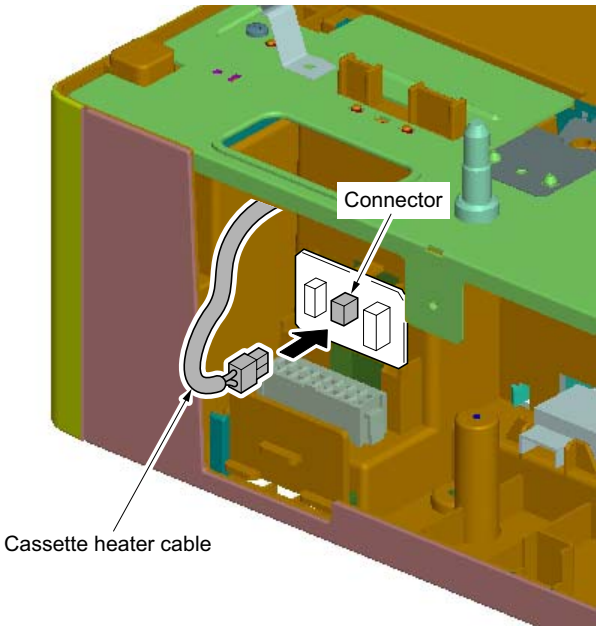


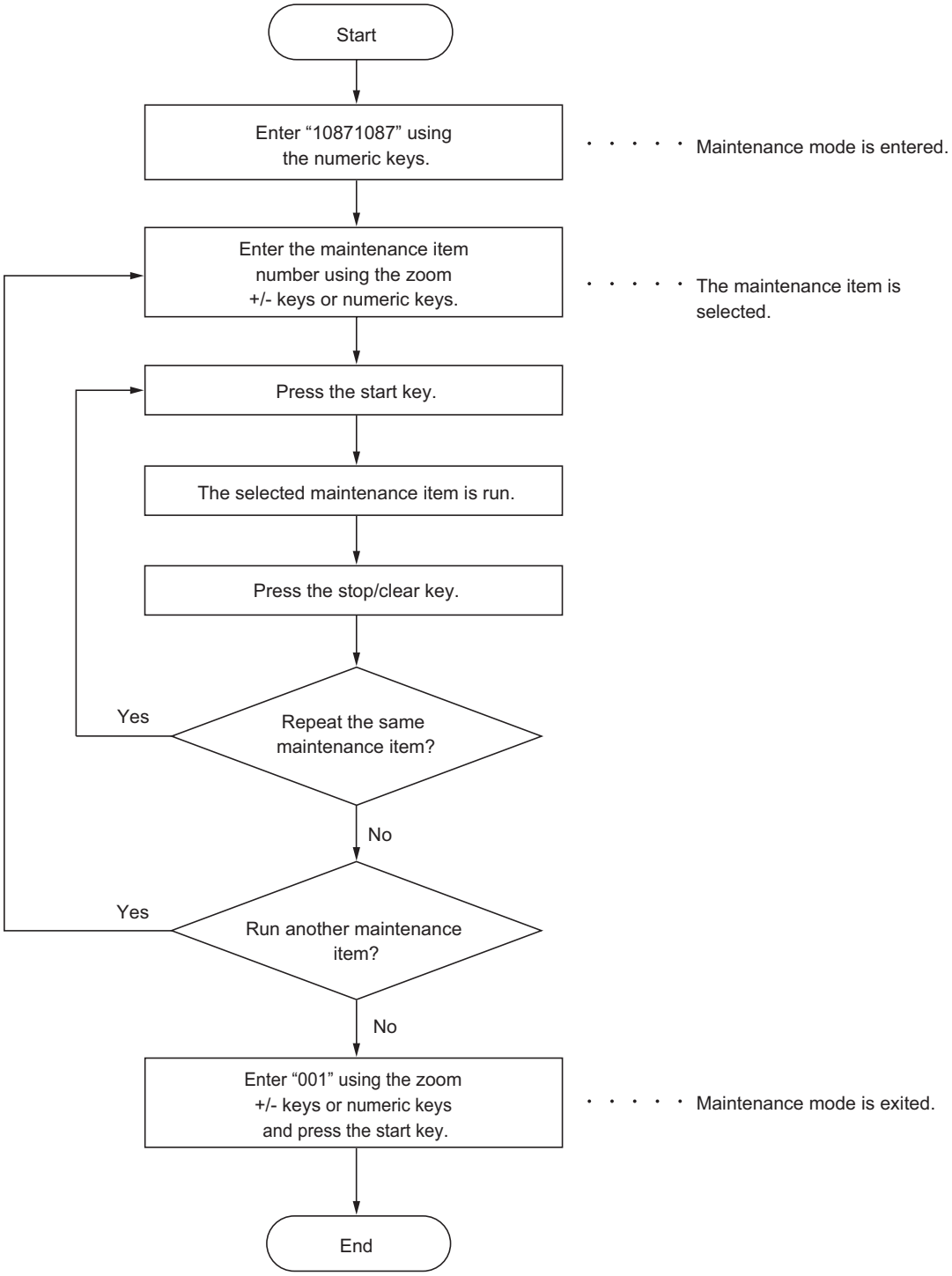
Figure 1-2-6

This page is intentionally left blank.

1-3-1 Maintenance mode (operation panel is a 7-segment type)

The machine is equipped with a maintenance function which can be used to maintain and service the machine.

(1) Executing a maintenance item


Start
Enter “10871087” using the numeric keys.
Maintenance mode is entered.
Enter the maintenance item number using the zoom +/- keys or numeric keys.
The maintenance item is selected.
Press the start key.
The selected maintenance item is run.
Press the stop/clear key.
Yes
Repeat the same maintenance item?
No
Yes
Run another maintenance item?
No
Enter “001” using the zoom +/- keys or numeric keys and press the start key.
Maintenance mode is exited.
End

(2) Maintenance mode item list

Section	Item No.	Content of maintenance item	Initial setting*
General	U019	Displaying the ROM version	-
Drive, paper feed and paper conveying system	U030	Checking motor operation	-
	U031	Checking switches for paper conveying	-
	U032	Checking clutch operation	-
	U034	Adjusting the print start timing Adjusting the leading edge registration Adjusting the center line Adjusting the trailing edge margin Adjusting the leading edge registration	2.8/0.0/0.0/0.0/0.0/0.8*1 -2.4/0.0/0.0/0.0/0.0/0.0*1 2.0*1 2.0/2.0/2.0/2.0/2.0/2.0*1
	U051	Adjusting the deflection in the paper	30/20/ 0/ -20/ -20/20*1
	U053	Performing fine adjustment of the motor speed	0.3/0.7/-0.5/0/0/0/0.5*1 -0.1/-0.1/-0.3*1
Mode setting	U341	Specific paper feed location setting for printing function	-
Other	U901	Checking/clearing copy counts by paper feed locations	-

*Initial setting for executing U020, *1: The item initialized for executing U020, *2: The item initialized for executing U021

(3) Contents of maintenance mode items

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U019</td><td>
Displaying the ROM version
Description
Displays the part number of the ROM fitted to each board.
Purpose
To check the part number or to decide if the ROM version is new from the last digit of the number.
Method
1. Press the start key.
2. Select the item to be displayed using the image mode selection key and exposure adjustment keys.
<table>
<tr><th>Image mode LEDs</th><th>Exposure indicator</th><th>Copy quantity display</th></tr>
<tr><td>○ Text & Photo
○ Photo
● Text</td><td>Exp. 1 (lit)
Exp. 2 (lit)
Exp. 3 (lit)
Exp. 4 (lit)</td><td>“A” Part Code: Main PWB
Change history of the main PWB
Number of the main ROM
Number of the main ROM sub</td></tr>
<tr><td>○ Text & Photo
● Photo
● Text</td><td>Exp. 1 (lit)
Exp. 2 (lit)
Exp. 3 (lit)
Exp. 4 (lit)
Exp. 5 (lit)
Exp. 1 (flashing)</td><td>“E” Part Code: Engine PWB
Change history of the engine PWB
Number of the engine ROM
Number of the engine ROM sub
Change history of the engine PWB BOOT
Number of the engine PWB BOOT</td></tr>
<tr><td>● Text & Photo
● Photo
● Text</td><td>Exp. 1 (lit)
Exp. 2 (lit)
Exp. 3 (lit)
Exp. 4 (lit)
Exp. 5 (lit)</td><td>“L” Part Code: Language
Change history of the standard language
Number of the standard language ROM
Change history of the optional language
Number of the optional language ROM</td></tr>
<tr><td>● Text & Photo
● Photo
☼ Text</td><td>Exp. 1 (lit)
Exp. 2 (lit)
Exp. 3 (lit)
Exp. 4 (lit)</td><td>“C” Part Code: Cassette
Number of the first paper feeder ROM
Number of the second paper feeder ROM
Number of the third paper feeder ROM</td></tr>
<tr><td>● Text & Photo
☼ Photo
☼ Text</td><td>Exp. 1 (lit)
Exp. 2 (lit)</td><td>“d” Part Code: DP
Number of the optional DP ROM</td></tr>
<tr><td>☼ Text & Photo
☼ Photo
☼ Text</td><td>Exp. 1 (lit)
Exp. 2 (lit)
Exp. 3 (lit)</td><td>“P” Part Code: Printer
Change history of the optional printer
Number of the optional printer ROM</td></tr>
</table>
○ : Off, ● : On, ☼ : Flashing
When the optional equipment is not installed, [non] is displayed.
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U030</td><td>
Checking motor operation
Description
Drives each motor.
Purpose
To check the operation of each motor.
Method
1. Press the start key.
2. Select the motor to be operated using the exposure adjustment keys.
<table>
<tr><th>Display</th><th>Motor</th></tr>
<tr><td>A</td><td>Drive motor (DM) is turned ON</td></tr>
<tr><td>2F</td><td>Drum motor (DRM) is turned ON</td></tr>
<tr><td>F1</td><td>Cassette drive motor 1 (CDM1) is turned ON</td></tr>
<tr><td>F2</td><td>Cassette drive motor 2 (CDM2) is turned ON</td></tr>
<tr><td>F3</td><td>Cassette drive motor 3 (CDM3) is turned ON</td></tr>
<tr><td>EJ1</td><td>Eject motor (EM) forward rotation is turned ON</td></tr>
<tr><td>EJ2</td><td>Eject motor (EM) reverse rotation is turned ON</td></tr>
</table>
3. Press the start key. The selected motor operates.
4. To stop operation, press the stop/reset key.
Completion
Press the stop/clear key after operation stops. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U031</td><td>
Checking switches for paper conveying
Description
Displays the on-off status of each paper detection switch on the paper path.
Purpose
To check if the switches for paper conveying operate correctly.
Method
1. Press the start key.
2. Turn each switch on and off manually to check the status. When the on-status of a switch is detected, the original size indicator corresponding to the operated switch lights.
<table>
<tr><th>Original size indicator</th><th>Switch</th></tr>
<tr><td>A3R/Ledger</td><td>Eject switch (ESW)</td></tr>
<tr><td>A4R/Legal</td><td>Registration switch (RSW)</td></tr>
<tr><td>A5R/Legal</td><td>Cassette feed switch 1 (CFSW1)</td></tr>
<tr><td>A4/Letter-R</td><td>Cassette feed switch 2 (CFSW2)</td></tr>
<tr><td>B4R/Letter</td><td>Feedshift switch (FSSW)</td></tr>
<tr><td>B5R/Statement</td><td>Duplex paper conveying switch (DUPPCSW) (option)</td></tr>
</table>
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U032</td><td>
Checking clutch operation
Description
Turns each clutch or solenoid on.
Purpose
To check the operation of each clutch or solenoid.
Method
1. Press the start key.
2. Select the clutch or solenoid to be operated using the exposure adjustment keys.
3. Press the start key. The selected clutch turns on for 1 s.
<table>
<tr><th>Display</th><th>Clutch</th></tr>
<tr><td>P1</td><td>Paper feed clutch (PFCL)</td></tr>
<tr><td>Pb</td><td>MP solenoid (MPSOL)</td></tr>
<tr><td>A1</td><td>Registration clutch (RCL)</td></tr>
<tr><td>d1</td><td>Duplex feed clutch (DUPFCL)</td></tr>
<tr><td>P2</td><td>Cassette paper feed clutch 1 (CPFCL1)</td></tr>
<tr><td>P3</td><td>Cassette paper feed clutch 2 (CPFCL2)</td></tr>
<tr><td>P4</td><td>Cassette paper feed clutch 3 (CPFCL3)</td></tr>
</table>
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

Maintenance item No.	Description
U034	**Adjusting the print start timing** **Description** Adjusts the leading edge registration, center line or trailing edge margin. **Purpose** Make the adjustment if there is a regular error between the leading edges of the copy image and original. Make the adjustment if there is a regular error between the center lines of the copy image and original. Make the adjustment if there is a regular error between the trailing edges of the copy image and original. **Method** 1. Press the start key. 2. Select the item using the image mode selection key.

Image mode LEDs (group No.)		Description
1	○ Text & Photo ○ Photo ● Text	Leading edge registration adjustment
2	○ Text & Photo ● Photo ● Text	Center line adjustment
3	● Text & Photo ● Photo ● Text	Trailing edge margin adjustment
4	● Text & Photo ● Photo ☼ Text	Leading edge registration adjustment for printer

○ : Off, ● : On, ☼ : Flashing

Adjustment: leading edge registration adjustment

1. Select group 1 using the image mode selection key.
2. Select the item using the exposure adjustment keys.

Exposure indicator	Description	Setting range	Initial setting	Change in value per step
Exp. 1 (lit)	Paper feed from cassette	-5.0 to 10.0	2.8	0.1 mm
Exp. 2 (lit)	Paper feed from MP tray	-5.0 to 10.0	0.0	0.1 mm
Exp. 3 (lit)	Paper feed from first paper feeder	-5.0 to 10.0	0.0	0.1 mm
Exp. 4 (lit)	Paper feed from second paper feeder	-5.0 to 10.0	0.0	0.1 mm
Exp. 5 (lit)	Paper feed from third paper feeder	-5.0 to 10.0	0.0	0.1 mm
Exp. 1 (flashing)	Duplex mode	-5.0 to 10.0	0.8	0.1 mm

3. Press the interrupt key.
4. Press the start key to output a test pattern.
5. Change the setting value using the zoom +/- keys.
   For output example 1, decrease the value. For output example 2, increase the value.

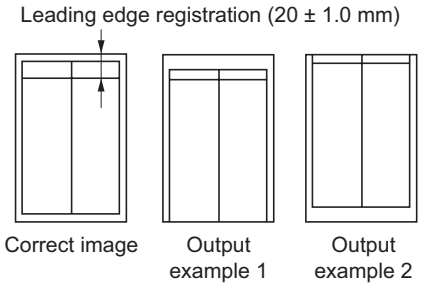


Figure 1-3-1

Maintenance item No.	Description
U034 (cont.)	6. Press the start key. The value is set. **Caution** Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode. U034 → U066 (See the service manual for the machine.) → U071 (See the service manual for the machine.) **Adjustment: center line adjustment** 1. Select group 2 using the image mode selection key. 2. Select the item using the exposure adjustment keys.

Exposure indicator	Description	Setting range	Initial setting	Change in value per step
Exp. 1 (lit)	Paper feed from cassette	-7.0 to 10.0	-2.4	0.1 mm
Exp. 2 (lit)	Paper feed from MP tray	-7.0 to 10.0	0.0	0.1 mm
Exp. 3 (lit)	Paper feed from first paper feeder	-7.0 to 10.0	0.0	0.1 mm
Exp. 4 (lit)	Paper feed from second paper feeder	-7.0 to 10.0	0.0	0.1 mm
Exp. 5 (lit)	Paper feed from third paper feeder	-7.0 to 10.0	0.0	0.1 mm
Exp. 1 (flashing)	Duplex mode	-7.0 to 10.0	0.0	0.1 mm

3. Press the interrupt key.
4. Press the start key to output a test pattern.
5. Change the setting value using the zoom +/- keys.
   For output example 1, decrease the value. For output example 2, increase the value.

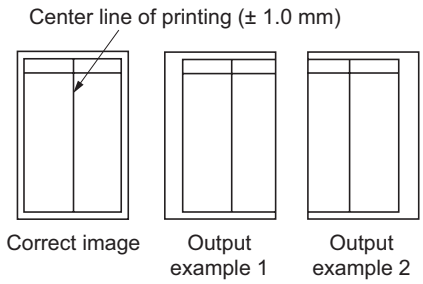


Figure 1-3-2

6. Press the start key. The value is set.

Caution

Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode.

U034 → U067 (See the service manual for the machine.) → U072 (See the service manual for the machine.)

Maintenance item No.	Description
U034 (cont.)	**Adjustment: trailing edge margin adjustment** 1. Select group 3 using the image mode selection key.

Description	Setting range	Initial setting	Change in value per step
Trailing edge margin adjustment	-4.0 to 10.0	2.0	0.1 mm

2. Press the interrupt key.
3. Press the start key to output a test pattern.
4. Change the setting value using the zoom +/- keys.
   For output example, increase the value.

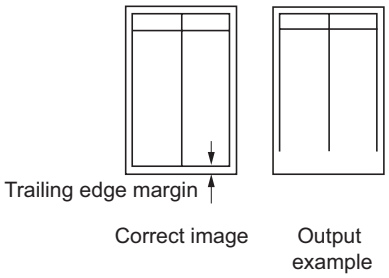


Figure 1-3-3

5. Press the start key. The value is set.

Adjustment: leading edge registration adjustment for printer

1. Select group 4 using the image mode selection key.
2. Select the item using the exposure adjustment keys.

Exposure indicator	Description	Setting range	Initial setting	Change in value per step
Exp. 1 (lit)	Paper feed from cassette	-5.0 to 10.0	2.0	0.1 mm
Exp. 2 (lit)	Paper feed from MP tray	-5.0 to 10.0	2.0	0.1 mm
Exp. 3 (lit)	Paper feed from first paper feeder	-5.0 to 10.0	2.0	0.1 mm
Exp. 4 (lit)	Paper feed from second paper feeder	-5.0 to 10.0	2.0	0.1 mm
Exp. 5 (lit)	Paper feed from third paper feeder	-5.0 to 10.0	2.0	0.1 mm
Exp. 1 (flashing)	Duplex mode	-5.0 to 10.0	2.0	0.1 mm

3. Press the interrupt key.
4. Press the start key to output a test pattern.
5. Change the setting value using the zoom +/- keys.
   For output example 1, decrease the value. For output example 2, increase the value.

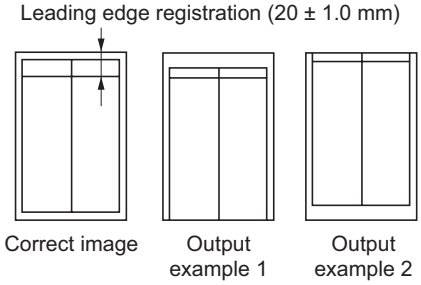


Figure 1-3-4

6. Press the start key. The value is set.

Completion

Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.

Maintenance item No.	Description
U051	**Adjusting the deflection in the paper** **Description** Adjusts the deflection in the paper. **Purpose** Make the adjustment if the leading edge of the copy image is missing or varies randomly, or if the copy paper is Z-folded. **Adjustment** 1. Press the start key. 2. Select the item using the exposure adjustment keys.

Exposure indicator	Description	Setting range	Initial setting	Change in value per step
Exp. 1 (lit)	Paper feed from cassette	-50 to 127	30	0.32 mm
Exp. 2 (lit)	Paper feed from MP tray	-50 to 127	20	0.32 mm
Exp. 3 (lit)	Paper feed from first paper feeder	-50 to 127	0	0.32 mm
Exp. 4 (lit)	Paper feed from second paper feeder	-50 to 127	-20	0.32 mm
Exp. 5 (lit)	Paper feed from third paper feeder	-50 to 127	-20	0.32 mm
Exp. 1 (flashing)	Duplex mode	-50 to 127	20	0.32 mm

3. Press the interrupt key.
4. Place an original and press the start key to make a test copy.
5. Change the setting value using the zoom +/- keys.
   For output example 1, increase the value. For output example 2, decrease the value.
   The greater the value, the larger the amount of slack; the smaller the value, the smaller the amount of slack.

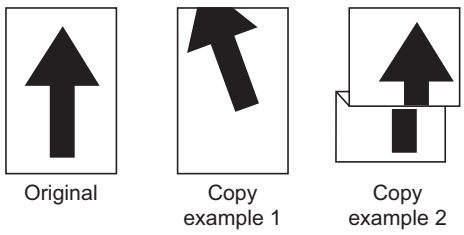


Figure 1-3-5

6. Press the start key. The value is set.

Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.

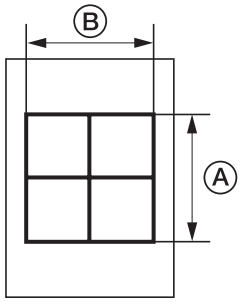
Maintenance item No.	Description
U053	**Performing fine adjustment of the motor speed** **Description** Performs fine adjustment of the speeds of the motors. **Purpose** Used to adjust the speed of the respective motors when the magnification is not correct. Also speed adjustment for each paper source can be performed in group 2. **Method** **Setting** 1. Press the start key. 2. Select the group using the image mode selection key. 3. Select the item to be set using the exposure adjustment keys.

Image mode LEDs	Exposure indicator	Description	Setting range	Initial setting
○ Text & Photo ○ Photo ● Text	Exp. 1 (lit) Exp. 2 (lit) Exp. 3 (lit) Exp. 4 (lit) Exp. 5 (lit) Exp. 1 (flashing) Exp. 2 (flashing)	Drive motor speed adjustment Polygon motor speed adjustment Eject motor speed adjustment Drum motor speed adjustment Eject motor speed adjustment 2 Eject motor speed adjustment 3 Eject motor speed adjustment 4	-5.0 to 5.0 -5.0 to 4.0 -5.0 to 5.0 -5.0 to 5.0 -5.0 to 5.0 -5.0 to 5.0 0.0 to 5.0	0.3 0.7 -0.5 0 0 0 0.5
○ Text & Photo ● Photo ● Text	Exp. 1 (lit) Exp. 2 (lit) Exp. 3 (lit)	Motor speed adjustment (for paper feed from MP tray) Motor speed adjustment (for paper feed from paper feeder) Motor speed adjustment (in duplex mode)	-5.0 to 5.0 -5.0 to 5.0 -5.0 to 5.0	-0.1 -0.1 -0.3

○ : Off, ● : On

Adjustment

1. Press the interrupt key.
2. Press the start key to output a VTC pattern.



Correct values for an A3/Ledger output are:
A = 300 ± 1.0 mm
B = 270 ± 1.0 mm

Figure 1-3-6

3. Change the setting value using the zoom +/- keys.
   A: Drive motor speed adjustment
   Increasing the setting makes the image longer in the auxiliary scanning direction, and decreasing it makes the image shorter in the auxiliary scanning direction.
   B: Polygon motor speed adjustment
   Increasing the setting makes the image shorter in the main scanning direction, and decreasing it makes the image longer in the main scanning direction.
4. Press the start key. The value is set.

Completion

Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.

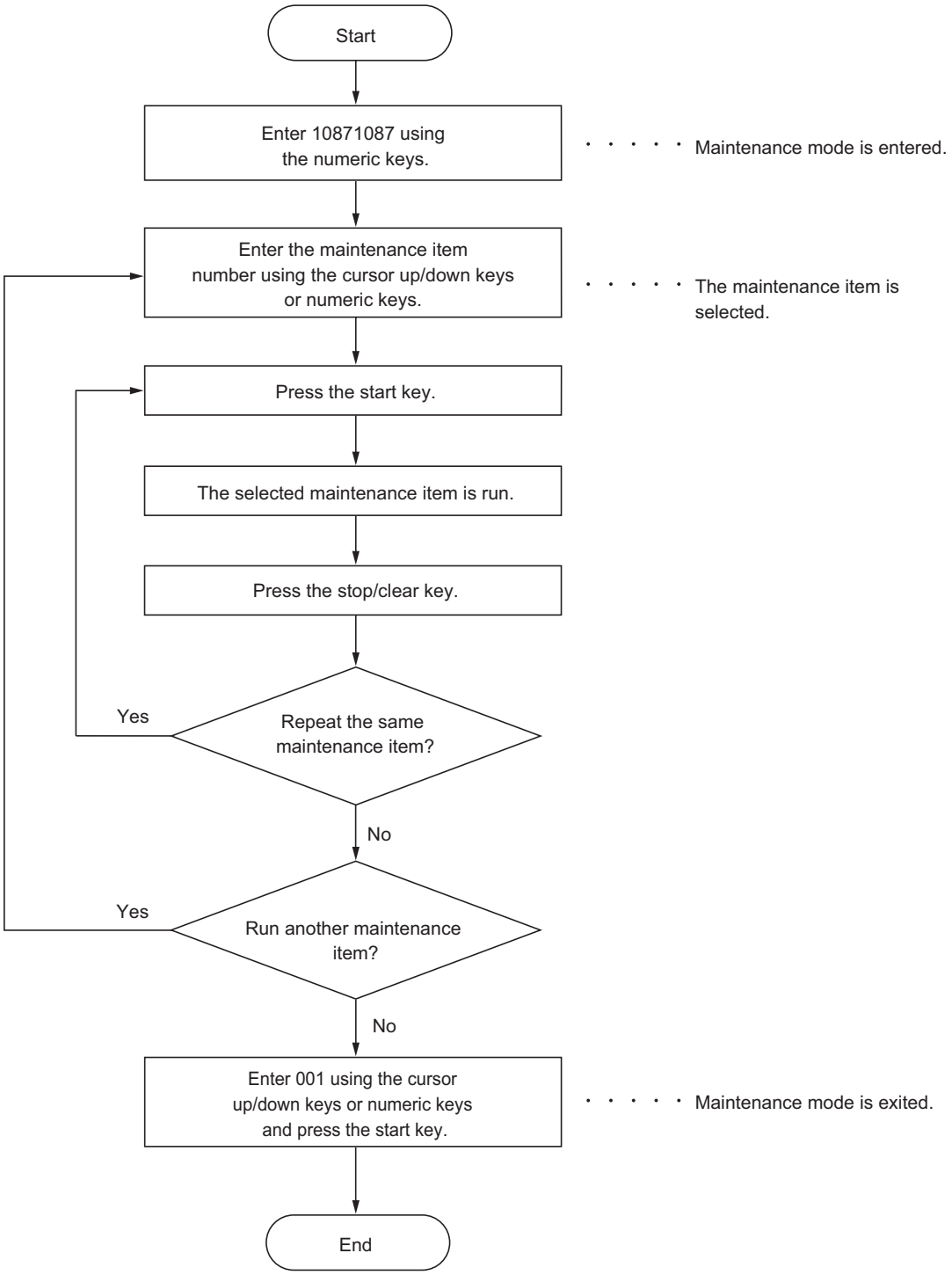
<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U341</td><td>
Specific paper feed location setting for printing function
Description
Sets a paper feed location specified for printer output.
Purpose
To use a paper feed location only for printer output. A paper feed location specified for printer output cannot be used for copy output.
Setting
1. Press the start key.
2. Select the paper feed location for the printer using the exposure adjustment keys.
3. Select "on" or "oFF" using the zoom +/- keys.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>Exp. 1</td><td>Cassette</td></tr>
<tr><td>Exp. 2</td><td>First paper feeder</td></tr>
<tr><td>Exp. 3</td><td>Second paper feeder</td></tr>
<tr><td>Exp. 4</td><td>Third paper feeder</td></tr>
</table>
4. Press the start key. The setting is set.
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U901</td><td>
Checking/clearing copy counts by paper feed locations
Description
Displays or clears copy counts by paper feed locations.
Purpose
To check the time to replace consumable parts. Also to clear the counts after replacing the consumable parts.
Method
1. Press the start key.
2. Select the paper feed location (group No.) for which the count is to be checked or cleared using the image mode selection key.
3. Select the item using the exposure adjustment keys.
<table>
<tr><th colspan="2">Image mode LED (group No.)</th><th>Exposure indicator</th><th>Copy quantity display (count value)</th></tr>
<tr><td>1</td><td>○ Text & Photo
○ Photo
● Text</td><td>Exp. 1
Exp. 2
Exp. 3</td><td>First 3 digits of MP copy count
Last 3 digits of MP copy count
Clearing the count (CLE)</td></tr>
<tr><td>2</td><td>○ Text & Photo
● Photo
● Text</td><td>Exp. 1
Exp. 2
Exp. 3</td><td>First 3 digits of the cassette copy count
Last 3 digits of the cassette copy count
Clearing the count (CLE)</td></tr>
<tr><td>3</td><td>● Text & Photo
● Photo
● Text</td><td>Exp. 1
Exp. 2
Exp. 3</td><td>First 3 digits of the first paper feeder copy count
Last 3 digits of the first paper feeder copy count
Clearing the count (CLE)</td></tr>
<tr><td>4</td><td>● Text & Photo
● Photo
☼ Text</td><td>Exp. 1
Exp. 2
Exp. 3</td><td>First 3 digits of the second paper feeder copy count
Last 3 digits of the second paper feeder copy count
Clearing the count (CLE)</td></tr>
<tr><td>5</td><td>● Text & Photo
☼ Photo
☼ Text</td><td>Exp. 1
Exp. 2
Exp. 3</td><td>First 3 digits of the third paper feeder copy count
Last 3 digits of the third paper feeder copy count
Clearing the count (CLE)</td></tr>
<tr><td>6</td><td>☼ Text & Photo
☼ Photo
☼ Text</td><td>Exp. 1
Exp. 2
Exp. 3</td><td>First 3 digits of the duplex unit copy count
Last 3 digits of the duplex unit copy count
Clearing the count (CLE)</td></tr>
</table>
○ : Off, ● : On, ☼ : Flashing
When no optional paper feed device is installed, the counts corresponding to optional paper feed devices will not appear.
Clearing copy counts by paper feed locations
1. Select the paper feed location to clear the count.
Paper feeder copy count cannot be cleared.
2. Light exp. 3 using the exposure adjustment key.
3. Press the start key. The count is cleared.
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

1-3-2 Maintenance mode (operation panel is an LCD type)

The machine is equipped with a maintenance function which can be used to maintain and service the machine.

(1) Executing a maintenance item


Start
Enter 10871087 using the numeric keys.
Maintenance mode is entered.
Enter the maintenance item number using the cursor up/down keys or numeric keys.
The maintenance item is selected.
Press the start key.
The selected maintenance item is run.
Press the stop/clear key.
Repeat the same maintenance item?
Yes
No
Run another maintenance item?
Yes
No
Enter 001 using the cursor up/down keys or numeric keys and press the start key.
Maintenance mode is exited.
End

(2) Maintenance mode item list

Section	Item No.	Content of maintenance item	Initial setting*
General	U019	Displaying the ROM version	-
Drive, paper feed and paper convey-ing system	U030	Checking motor operation	-
	U031	Checking switches for paper conveying	-
	U032	Checking clutch operation	-
	U034	Adjusting the print start timing Adjusting the leading edge registration Adjusting the center line Adjusting the trailing edge registration	2.8/0.0/0.0/0.0/0.0/0.8*1 -2.4/0.0/0.0/0.0/0.0/0.0*1 2.0*1
	U051	Adjusting the deflection in the paper	30/20/0/-20/-20/20*1
	U053	Setting the adjustment of the motor speed	0.3/0.7/-0.5/0.0/-0.1 -0.1/-0.3/0.0/0.0/0.5/0.0*1
Mode setting	U341	Specific paper feed location setting for printing function	-
Other	U901	Checking copy counts by paper feed locations	-

*Initial setting for executing U020, *1: The item initialized for executing U020, *2: The item initialized for executing U021

(3) Contents of maintenance mode items

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U019</td><td>
Displaying the ROM version
Description
Displays the part number of the ROM fitted to each PWB.
Purpose
To check the part number or to decide, if the newest version of ROM is installed.
Method
1. Press the start key. The ROM version are displayed.
2. Change the screen using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>MAIN</td><td>Main ROM</td></tr>
<tr><td>ENGINE</td><td>Engine ROM</td></tr>
<tr><td>LANG(St)</td><td>Standard language ROM</td></tr>
<tr><td>LANG(Op)</td><td>Optional language ROM</td></tr>
<tr><td>MAIN BOOT</td><td>Boot of main ROM</td></tr>
<tr><td>PRINTER</td><td>Printer ROM</td></tr>
<tr><td>NWS</td><td>Optional network scanner ROM</td></tr>
<tr><td>DP</td><td>Optional DP ROM</td></tr>
<tr><td>FINISHER</td><td>Optional built-in finisher ROM</td></tr>
<tr><td>CASS2</td><td>First paper feeder ROM (standard for 22 ppm model)</td></tr>
<tr><td>CASS3</td><td>Second paper feeder ROM</td></tr>
<tr><td>CASS4</td><td>Third paper feeder ROM</td></tr>
</table>
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U030</td><td>
Checking motor operation
Description
Drives each motor.
Purpose
To check the operation of each motor.
Method
1. Press the start key.
2. Select the motor to be operated using the cursor up/down keys.
3. Press the start key. The operation starts.
<table>
<tr><th>Display</th><th>Operation</th></tr>
<tr><td>MAIN</td><td>Drive motor (DM) is turned ON</td></tr>
<tr><td>DRUM</td><td>Drum motor (DRM) is turned ON</td></tr>
<tr><td>T1</td><td>Cassette drive motor 1 (CDM1) is turned ON</td></tr>
<tr><td>T2</td><td>Cassette drive motor 2 (CDM2) is turned ON</td></tr>
<tr><td>T3</td><td>Cassette drive motor 3 (CDM3) is turned ON</td></tr>
<tr><td>EJE1</td><td>Eject motor (EM) is turned ON (forward)</td></tr>
<tr><td>EJE2</td><td>Eject motor (EM) is turned ON (reverse)</td></tr>
</table>
4. To stop operation, press the stop/clear key.
Completion
Press the stop/clear key after operation stops. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U031</td><td>
Checking switches for paper conveying
Description
Displays the on-off status of each paper detection switch on the paper path.
Purpose
To check if the switches for paper conveying operate correctly.
Method
1. Press the start key.
2. Turn each switch on and off manually to check the status.
When a switch is detected to be in the ON position, the display for that switch will be highlighted.
<table>
<tr><th>Display</th><th>Switches</th></tr>
<tr><td>EJE</td><td>Eject switch (ESW)</td></tr>
<tr><td>RES</td><td>Registration switch (RSW)</td></tr>
<tr><td>PF2</td><td>Cassette feed switch 1 (CFSW1)</td></tr>
<tr><td>PF3</td><td>Cassette feed switch 2 (CFSW2)</td></tr>
<tr><td>BRA</td><td>Feedshift switch (FSSW)</td></tr>
<tr><td>DUP</td><td>Duplex paper conveying switch (DUPPCSW) (option)</td></tr>
<tr><td>JOB</td><td>Job eject switch (JBESW) (option)</td></tr>
</table>
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U032</td><td>
Checking clutch operation
Description
Turns each clutch or solenoid on.
Purpose
To check the operation of each clutch or solenoid.
Method
1. Press the start key.
2. Select the clutch or solenoid to be operated using the cursor up/down keys.
3. Press the start key. The clutch or solenoid turns on for 1 s.
<table>
<tr><th>Display</th><th>Clutches and solenoid</th></tr>
<tr><td>PF1</td><td>Paper feed clutch (PFCL)</td></tr>
<tr><td>PFBYP</td><td>MP solenoid (MPSOL)</td></tr>
<tr><td>REG</td><td>Registration clutch (RCL)</td></tr>
<tr><td>DUP</td><td>Duplex feed clutch (DUPFCL)</td></tr>
<tr><td>PF2</td><td>Cassette paper feed clutch 1 (CPFCL1)</td></tr>
<tr><td>PF3</td><td>Cassette paper feed clutch 2 (CPFCL2)</td></tr>
<tr><td>PF4</td><td>Cassette paper feed clutch 3 (CPFCL3)</td></tr>
</table>
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

Maintenance item No.	Description
U034	**Adjusting the print start timing** **Description** Adjusts the leading edge registration or center line. **Purpose** Make the adjustment if there is a regular error between the leading edges of the copy image and original. Make the adjustment if there is a regular error between the center lines of the copy image and original. Make the adjustment if there is a regular error between the trailing edges of the copy image and original. **Method** 1. Press the start key. 2. Select the item to be adjusted using the cursor up/down keys. The setting screen for the selected item is displayed.

Display	Description
ADJ. RCL ON TIMING	Leading edge registration adjustment
ADJ. LSU ON TIMING	Center line adjustment
ADJ. MGN REAR	Trailing edge margin adjustment

Adjustment: Leading edge registration adjustment

1. Select the item to be adjusted using the cursor up/down keys.

Display	Description	Setting range	Initial setting	Change in value per step
RCL ON	Paper feed from cassette	-5.0 to 10.0	2.8	0.1 mm
RCL BYP	Paper feed from MP tray	-5.0 to 10.0	0.0	0.1 mm
RCL T1	Paper feed from first paper feeder	-5.0 to 10.0	0.0	0.1 mm
RCL T2	Paper feed from second paper feeder	-5.0 to 10.0	0.0	0.1 mm
RCL T3	Paper feed from third paper feeder	-5.0 to 10.0	0.0	0.1 mm
RCL DUP	Duplex mode (second side)	-5.0 to 10.0	0.8	0.1 mm

2. Press the interrupt key.
3. Press the start key to output a test pattern.
4. Change the setting value using the cursor left/right keys.
   For output example 1, decrease the value.
   For output example 2, increase the value.

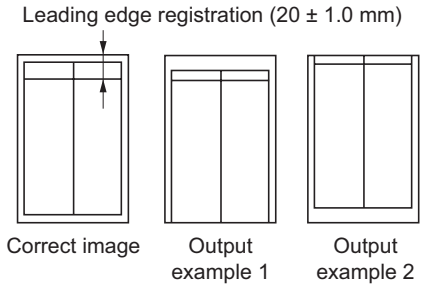
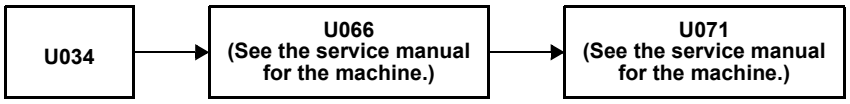


Figure 1-3-7

5. Press the start key. The value is set.

Caution

Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode.



Maintenance item No.	Description
U034	**Adjustment: Center line adjustment** 1. Select the item to be adjusted using the cursor up/down keys.

Display	Description	Setting range	Initial setting	Change in value per step
LSU OUT	Paper feed from cassette	-7.0 to 10.0	-2.4	0.1 mm
LSU BYP	Paper feed from MP tray	-7.0 to 10.0	0.0	0.1 mm
LSU T1	Paper feed from first paper feeder	-7.0 to 10.0	0.0	0.1 mm
LSU T2	Paper feed from second paper feeder	-7.0 to 10.0	0.0	0.1 mm
LSU T3	Paper feed from third paper feeder	-7.0 to 10.0	0.0	0.1 mm
LSU DUP	Duplex mode (second side)	-7.0 to 10.0	0.0	0.1 mm

2. Press the interrupt key.
3. Press the start key to output a test pattern.
4. Change the setting value using the cursor left/right keys.
   For output example 1, decrease the value.
   For output example 2, increase the value.

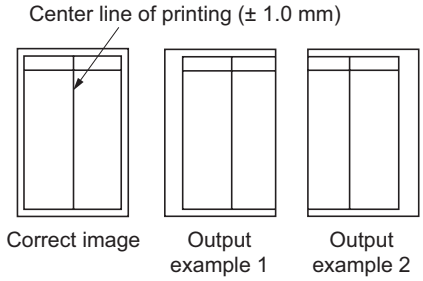
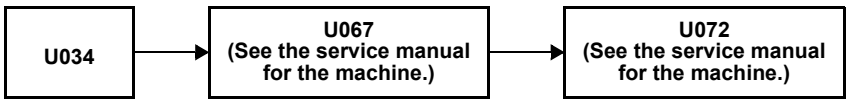


Figure 1-3-8

5. Press the start key. The value is set.

Caution
Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode.



Maintenance item No.	Description
U034	**Adjustment: Trailing edge margin adjustment** 1. Select [MGN REAR]. 2. Press the interrupt key. 3. Press the start key to output a test pattern. 4. Change the setting value using the cursor left/right keys. For output example, increase the value. 5. Press the start key. The value is set. **Completion** Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.

Display	Description	Setting range	Initial setting	Change in value per step
MGN REAR	Trailing edge margin adjustment	-4.0 to 10.0	2.0	0.1 ms

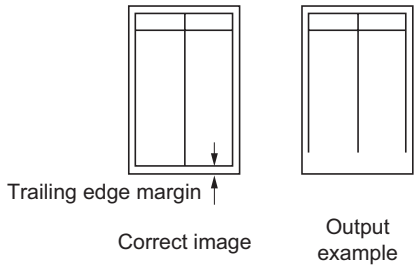


Figure 1-3-9

Maintenance item No.	Description
U051	**Adjusting the deflection in the paper** **Description** Adjusts the deflection in the paper. **Purpose** Make the adjustment if the leading edge of the copy image is missing or varies randomly, or if the copy paper is Z-folded. **Adjustment** 1. Press the start key. 2. Select the item to be adjusted using the cursor up/down keys.

Display	Description	Setting range	Initial setting
PF1	Paper feed from cassette	-50 to 127	30
BYPASS	Paper feed from MP tray	-50 to 127	20
PF2	Paper feed from first paper feeder	-50 to 127	0
PF3	Paper feed from second paper feeder	-50 to 127	-20
PF4	Paper feed from third paper feeder	-50 to 127	-20
DUPLEX	Duplex mode (second side)	-50 to 127	20

3. Press the interrupt key.
4. Place an original and press the start key to make a test copy.
5. Change the setting value using the cursor left/right keys.
   For output example 1, increase the value.
   For output example 2, decrease the value.
   The greater the value, the larger the deflection; the smaller the value, the smaller the deflection.

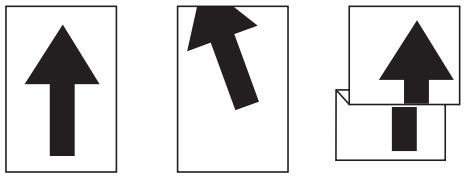


Figure 1-3-10

6. Press the start key. The value is set.

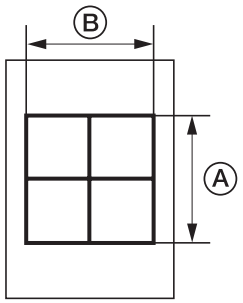
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.

Maintenance item No.	Description
U053	**Setting the adjustment of the motor speed** **Description** Performs fine adjustment of the speeds of the motors. **Purpose** To adjust the speed of the respective motors when the magnification is not correct. **Method** 1. Press the start key. 2. Select the item to be adjusted using the cursor up/down keys.

Display	Description	Setting range	Initial setting
MAIN	Drive motor speed adjustment	-5.0 to 5.0	0.3
POLY	Polygon motor speed adjustment	-5.0 to 5.0	0.7
EJE	Eject motor speed adjustment	-5.0 to 5.0	-0.5
DRUM	Drum motor speed adjustment	-5.0 to 5.0	0.0
BYP	Motor speed adjustment (for paper feed from MP tray)	-5.0 to 5.0	-0.1
CAS	Motor speed adjustment (for paper feed from paper feeder)	-5.0 to 5.0	-0.1
DUP	Motor speed adjustment (for duplex mode)	-5.0 to 5.0	-0.3
EJE2	Eject motor speed (optional ejection correction value in the case of paper size of A3, B4 and Ledger)	-5.0 to 5.0	0.0
EJE3	Eject motor speed (optional ejection correction value in the case of paper size other than those above)	-5.0 to 5.0	0.0
EJE4	Eject motor speed (ejection motor correction value at the time of duplex inner ejection)	0.0 to 5.0	0.5
DF	Paper conveying motor speed adjustment (for optional built-in finisher)	-4.0 to 4.0	0.0

Adjustment

1. Press the interrupt key.
2. Press the start key to output an A3/Ledger VTC pattern.



Correct values for an A3/Ledger output are:
A = 300 ± 1.0 mm
B = 270 ± 1.0 mm

Figure 1-3-11

3. Change the setting value using the cursor left/right keys.
   A: Drive motor speed adjustment
   Increasing the setting makes the image longer in the auxiliary scanning direction, and decreasing it makes the image shorter in the auxiliary scanning direction.
   B: Polygon motor speed adjustment
   Increasing the setting makes the image shorter in the main scanning direction, and decreasing it makes the image longer in the main scanning direction.
4. Press the start key. The value is set.

Completion

Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U341</td><td>
Specific paper feed location setting for printing function
Description
Sets a paper feed location specified for printer output.
Purpose
To use a paper feed location only for printer output.
A paper feed location specified for printer output cannot be used for copy output.
Setting
1. Press the start key.
2. Select the paper feed location for the printer using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>PF1</td><td>Cassette</td></tr>
<tr><td>PF2</td><td>First paper feeder</td></tr>
<tr><td>PF3</td><td>Second paper feeder</td></tr>
<tr><td>PF4</td><td>Third paper feeder</td></tr>
</table>
3. Change the setting using the cursor left/right keys.
0: OFF/1: ON
4. Press the start key. The setting is set.
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U901</td><td>
Checking copy counts by paper feed locations
Description
Displays and clears copy counts by paper feed locations.
Purpose
To check the time to replace consumable parts. Also to clear the counts after replacing the consumable parts.
Method
1. Press the start key. The counts by paper feed locations are displayed.
2. Change the screen using the cursor left/right keys.
<table>
<tr><th>Display</th><th>Paper feed locations</th></tr>
<tr><td>BYP</td><td>MP tray</td></tr>
<tr><td>PF1</td><td>Cassette</td></tr>
<tr><td>PF2</td><td>First paper feeder</td></tr>
<tr><td>PF3</td><td>Second paper feeder</td></tr>
<tr><td>PF4</td><td>Third paper feeder</td></tr>
<tr><td>DUP</td><td>Duplex section</td></tr>
</table>
When an optional paper feed device is not installed, the corresponding count is not displayed.

Clearing
1. Select the count to be cleared using the cursor up/down keys.
However, PF2, 3, and 4 are displayed only and cannot be cleared.
2. Press the start key. The count is cleared.
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

1-4-1 Paper misfeed detection

(1) Paper misfeed indication

When a paper misfeed occurs, the machine immediately stops copying and displays the jam location on the operation panel.
Paper misfeed detection can be reset by opening and closing the cassette left cover to turn safety switch off and on.

(2) Paper misfeed detection conditions

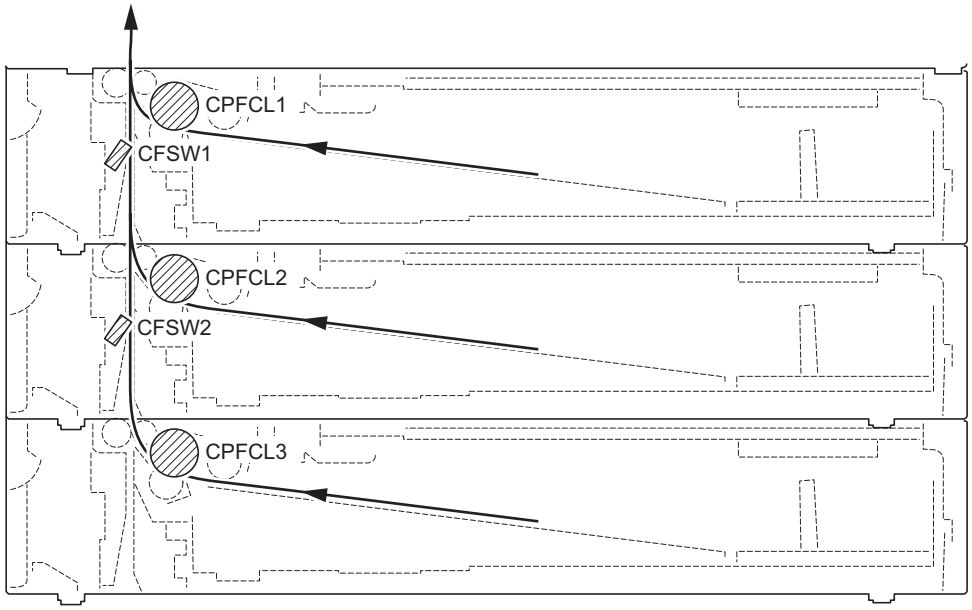


Figure 1-4-1

Section	Description	Conditions	Specified time
Paper feed section	12 No paper feed from first paper feeder	The registration switch (RSW) does not turn on within the specified time of cassette paper paper feed clutch 1 (CPFCL1) turning on and cannot be detected at the same timing even after retry.	2290 ms
	13 No paper feed from second paper feeder	Cassette feed switch 1 (CFSW1) does not turn on within the specified time of cassette paper paper feed clutch 2 (CPFCL2) turning on and cannot be detected at the same timing even after retry.	1953 ms
	14 No paper feed from third paper feeder	Cassette feed switch 2 (CFSW2) does not turn on within the specified time of cassette paper paper feed clutch 3 (CPFCL3) turning on and cannot be detected at the same timing even after retry.	1953 ms
	15 Misfeed in vertical paper conveying section 1	The registration switch (RSW) does not turn on within specified time of cassette feed switch 1 (CFSW1) turning on.	2243 ms
		Cassette feed switch 1 (CFSW1) does not turn off within specified time of cassette feed switch 2 (CFSW2) turning on.	1916 ms
		Cassette feed switch 1 (CFSW1) does not turn off within specified time of cassette feed switch 2 (CFSW2) turning off.	1916 ms
		Left cover is opened in prior to the cassette feed switch 1 (CFSW1) is turned off.	-
	16 Misfeed in vertical paper conveying section 2	Cassette feed switch 1 (CFSW1) does not turn on within specified time of cassette feed switch 2 (CFSW2) turning on.	1916 ms
		Left cover is opened in prior to the cassette feed switch 2 (CFSW2) is turned off.	-
	22 Multiple sheets in first paper feeder	The registration switch (RSW) does not turn off within specified time of its turning on.	5907 ms
		The registration switch (RSW) does not turn off within the specified time of cassette paper feed clutch 1 (CPFCL1) turning on.	2290 ms
	23 Multiple sheets in second paper feeder	Cassette feed switch 1 (CFSW1) does not turn off within specified time of its turning on.	5907 ms
		Cassette feed switch 1 (CFSW1) does not turn off within the specified time of cassette paper feed clutch 2 (CPFCL2) turning on.	1953 ms
	24 Multiple sheets in third paper feeder	Cassette feed switch 2 (CFSW2) does not turn off within specified time of its turning on.	5907 ms
		Cassette feed switch 2 (CFSW2) does not turn off within the specified time of cassette paper feed clutch 3 (CPFCL3) turning on.	1953 ms

(3) Paper misfeeds

Problem	Causes/check procedures	Corrective measures
(1) A paper jam in the paper feed section is indicated during copying (no paper feed from first paper feeder). Jam code 12	Paper is extremely curled.	Change the paper.
	Check if the paper feed pulley, separation pulley or forwarding pulley is deformed.	Check visually and replace any deformed pulley.
	Broken registration switch actuator.	Check visually and replace switch.
	Defective registration switch.	Run maintenance item U031 and turn registration switch on and off manually. Replace the switch if indication of the corresponding switch is not light.
	Check if the cassette paper feed clutch 1 malfunctions.	Run maintenance item U032 and select the cassette paper feed clutch 1 to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the cassette paper feed clutch 1.	Check (see page 1-4-9).
(2) A paper jam in the paper feed section is indicated during copying (no paper feed from second paper feeder). Jam code 13	Paper is extremely curled.	Change the paper.
	Check if the paper feed pulley, separation pulley or forwarding pulley is deformed.	Check visually and replace any deformed pulley.
	Broken cassette feed switch 1 actuator.	Check visually and replace switch.
	Defective cassette feed switch 1.	Run maintenance item U031 and turn cassette feed switch 1 on and off manually. Replace the switch if indication of the corresponding switch is not light.
	Check if the cassette paper feed clutch 2 malfunctions.	Run maintenance item U032 and select the cassette paper feed clutch 2 to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the cassette paper feed clutch 2.	Check (see page 1-4-9).
(3) A paper jam in the paper feed section is indicated during copying (no paper feed from third paper feeder). Jam code 14	Paper is extremely curled.	Change the paper.
	Check if the paper feed pulley, separation pulley or forwarding pulley is deformed.	Check visually and replace any deformed pulley.
	Broken cassette feed switch 2 actuator.	Check visually and replace switch.
	Defective cassette feed switch 2.	Run maintenance item U031 and turn cassette feed switch 2 on and off manually. Replace the switch if indication of the corresponding switch is not light.
	Check if the cassette paper feed clutch 3 malfunctions.	Run maintenance item U032 and select the cassette paper feed clutch 3 to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the cassette paper feed clutch 3.	Check (see page 1-4-9).

Problem	Causes/check procedures	Corrective measures
(4) A paper jam in the paper feed section is indicated during copying (misfeed in vertical paper conveying section 1). Jam code 15	Broken registration switch, cassette feed switch 1 or 2 actuator.	Check visually and replace switch.
	Defective switch.	Run maintenance item U031 and turn switch on and off manually. Replace the switch if indication of the corresponding switch is not light. Registration switch, cassette feed switch 1, 2
	Check if the paper feed clutch, cassette paper feed clutch 1, 2 or 3 malfunctions.	Run maintenance item U032 and select the clutch to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the paper feed clutch, cassette paper feed clutch 1, 2 or 3.	Check (see page 1-4-9).
	Defective feed pulleys or feed rollers.	Check visually and replace.
(5) A paper jam in the paper feed section is indicated during copying (misfeed in vertical paper conveying section 2). Jam code 16	Broken cassette feed switch 1 or 2 actuator.	Check visually and replace switch.
	Defective switch.	Run maintenance item U031 and turn switch on and off manually. Replace the switch if indication of the corresponding switch is not light. Cassette feed switch 1, 2
	Check if the paper feed clutch, cassette paper feed clutch 1 or 2 malfunctions.	Run maintenance item U032 and select the clutch to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the paper feed clutch, cassette paper feed clutch 1 or 2.	Check (see page 1-4-9).
	Defective feed pulleys or feed rollers.	Check visually and replace.
(6) A paper jam in the paper feed section is indicated during copying (multiple sheets in first paper feeder). Jam code 22	Deformed guides along the paper conveying path.	Check visually and replace.
	Broken registration switch actuator.	Check visually and replace switch.
	Defective registration switch.	Run maintenance item U031 and turn registration switch on and off manually. Replace the switch if indication of the corresponding switch is not light.
	Check if the cassette paper feed clutch 1 malfunctions.	Run maintenance item U032 and select the cassette paper feed clutch 1 to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the cassette paper feed clutch 1.	Check (see page 1-4-9).
	Check if the right and left registration rollers contact each other.	Check visually and replace.

Problem	Causes/check procedures	Corrective measures
(7) A paper jam in the paper feed section is indicated during copying (multiple sheets in second paper feeder). Jam code 23	Deformed guides along the paper conveying path.	Check visually and replace.
	Broken cassette feed switch 1 actuator.	Check visually and replace switch.
	Defective cassette feed switch 1.	Run maintenance item U031 and turn cassette feed switch 1 on and off manually. Replace the switch if indication of the corresponding switch is not light.
	Check if the cassette paper feed clutch 2 malfunctions.	Run maintenance item U032 and select the cassette paper feed clutch 2 to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the cassette paper feed clutch 2.	Check (see page 1-4-9).
(8) A paper jam in the paper feed section is indicated during copying (multiple sheets in third paper feeder). Jam code 24	Deformed guides along the paper conveying path.	Check visually and replace.
	Broken cassette feed switch 2 actuator.	Check visually and replace switch.
	Defective cassette feed switch 2.	Run maintenance item U031 and turn cassette feed switch 2 on and off manually. Replace the switch if indication of the corresponding switch is not light.
	Check if the cassette paper feed clutch 3 malfunctions.	Run maintenance item U032 and select the cassette paper feed clutch 3 to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the cassette paper feed clutch 3.	Check (see page 1-4-9).

1-4-2 Self-diagnosis

(1) Self-diagnostic function (operation panel is a 7-segment type)

When an unexpected error is detected for some reason, a system error (A call error) will be indicated. After a system error (A call error) is indicated, the error can be cleared by turning the main power switch off and then on. If a system error (A call error) occurs frequently, a fault may have occurred. Check the details of the C call to take proper measures.

(2) Self diagnostic codes (operation panel is a 7-segment type)

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
A0420	**First paper feeder communication problem** Communication fails five times successively.	First paper feeder installed incorrectly.	Check the installation state of the first paper feeder and adjust it if it is not properly installed.
		Defective PWB.	Replace the main/engine PWB or cassette main PWB and check for correct operation.
A0500	**Second paper feeder communication problem** Communication fails five times successively.	Second paper feeder installed incorrectly.	Check the installation state of the second paper feeder and adjust it if it is not properly installed.
		Defective PWB.	Replace the main/engine PWB or cassette main PWB and check for correct operation.
A0510	**Third paper feeder communication problem** Communication fails five times successively.	Third paper feeder installed incorrectly.	Check the installation state of the third paper feeder and adjust it if it is not properly installed.
		Defective PWB.	Replace the main/engine PWB or cassette main PWB and check for correct operation.

(3) Self-diagnostic function (operation panel is an LCD type)

When an unexpected error is detected for some reason, a system error will be indicated. After a system error is indicated, the error can be cleared by turning the main power switch off and then on. If the error is detected continuously, however, perform the operation shown in Table 1-4-1. If a system error occurs frequently, a fault may have occurred. Check the details of the C call to take proper measures.

System error	Contents	Operation
0420	First paper feeder communication problem	System error → service call
0500	Second paper feeder communication problem	System error → service call
0510	Third paper feeder communication problem	System error → service call

Table 1-4-1

(4) Self diagnostic codes (operation panel is an LCD type)

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C0420	**First paper feeder communication problem** Communication fails five times successively.	First paper feeder installed incorrectly.	Check the installation state of the first paper feeder and adjust it if it is not properly installed.
		Defective PWB.	Replace the engine PWB or cassette main PWB and check for correct operation.
C0500	**Second paper feeder communication problem** Communication fails five times successively.	Second paper feeder installed incorrectly.	Check the installation state of the second paper feeder and adjust it if it is not properly installed.
		Defective PWB.	Replace the engine PWB or cassette main PWB and check for correct operation.
C0510	**Third paper feeder communication problem** Communication fails five times successively.	Third paper feeder installed incorrectly.	Check the installation state of the third paper feeder and adjust it if it is not properly installed.
		Defective PWB.	Replace the engine PWB or cassette main PWB and check for correct operation.

1-4-3 Image formation problems

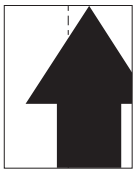
(1) The leading edge of the image is consistently misaligned with the original.

Copy example	Causes	Check procedures/corrective measures
	Misadjusted leading edge registration.	Run maintenance mode U034 to readjust the leading edge registration (see page 1-3-6, 17).

(2) The leading edge of the image is sporadically misaligned with the original.

Copy example	Causes	Check procedures/corrective measures
	Paper feed clutch, MP solenoid or registration clutch installed or operating incorrectly.	Check the installation position and operation of each clutch or solenoid. If any of them operates incorrectly, replace it.

(3) Image center does not align with the original center.

Copy example	Causes	Check procedures/corrective measures
	Misadjusted image center line.	Run maintenance item U034 to readjust the center line of image printing (see page 1-3-7, 18).
	Original is not placed correctly.	Place the original correctly.

1-4-4 Electric problems

Troubleshooting to each failure must be in the order of the numbered symptoms.

Problem	Causes	Check procedures/corrective measures
(1) The paper feeder does not operate when the main power switch is turned on.	1. Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	2. Defective cassette left cover switch.	Check for continuity across the contacts. If none, replace the cassette left cover switch.
(2) The cassette drive motor does not operate.	1. Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	2. Defective drive transmission system.	Check if the rollers and gears rotate smoothly. If not, grease the bushings and gears. Check for broken gears and replace if any.
	3. Defective cassette drive motor.	Run maintenance item U030 and check if the cassette drive motor operates. If not, replace the cassette drive motor.
	4. Defective cassette main PWB.	Run maintenance item U030 and check if the cassette drive motor operates. If not, replace the cassette main PWB.
(3) The cassette paper feed clutch does not operate.	1. Broken clutch coil.	Check for continuity across the coil. If none, replace the clutch.
	2. Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	3. Defective cassette main PWB.	Run maintenance item U032 and check if following terminals on the cassette main PWB goes low. If not, replace the cassette main PWB. Cassette paper feed clutch: YC8-2 on the cassette main PWB
(4) The message requesting paper to be loaded is shown when paper is present on the cassette.	1. Poor contact in the connector terminals of cassette paper switch.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	2. Defective cassette paper switch.	If the level of following terminal on PWB does not go low when the switch is turned on and off, replace the switch. Cassette paper switch: YC5-2 on the cassette main PWB
(5) The size of paper on the cassette is not displayed correctly.	1. Poor contact in the connector terminals of cassette paper size width switch or cassette paper size length switch.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	2. Defective cassette paper size width switch or cassette paper size length switch.	If the level of following terminal on PWB does not go low when the switch is turned on and off, replace the switch. Cassette paper size width switch: YC4-4 on the cassette main PWB Cassette paper size length switch: YC4-5, 6, 8 on the cassette main PWB
(6) A paper jam in the paper feeder is indicated when the main power switch is turned on.	1. A piece of paper torn from copy paper is caught around cassette feed switch 1 or 2.	Check visually and remove it, if any.
	2. Defective switch.	Run maintenance item U031 and turn switch on and off manually. Replace the switch if indication of the corresponding switch is not light. Cassette feed switch1, 2

Problem	Causes	Check procedures/corrective measures
(7) The message requesting cover to be closed is displayed when the cassette left cover is closed.	1. Poor contact in the connector terminals of cassette left cover safety switch.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	2. Defective cassette left cover safety switch.	Check for continuity across each switch. If there is no continuity when the switch is on, replace it.
(8) Others.	1. Wiring is broken, shorted or makes poor contact.	Check for continuity. If none, repair.

1-4-5 Mechanical problems

Problem	Causes/check procedures	Corrective measures
(1) No primary paper feed.	Check if the surfaces of the following rollers or pulleys are dirty with paper powder: cassette forwarding pulley, cassette paper feed pulley, cassette separation pulley, feed roller and feed pulley.	Clean with isopropyl alcohol.
	Check if the upper/lower forwarding pulleys, cassette forwarding pulley, cassette paper feed pulley, cassette separation pulley is deformed.	Replace (see page 1-5-3, 5).
	Electrical problem with the following clutches and solenoid: cassette paper feed clutch.	See page 1-4-9.
(2) Skewed paper feed.	Width guide in a cassette installed incorrectly.	Check the width guide visually and correct or replace if necessary.
	Deformed width guide in a cassette.	Check visually and replace any deformed guide.
(3) Multiple sheets of paper are fed at one time.	Paper is extremely curled.	Change the paper.
	Check if the cassette separation pulley is worn.	Replace the cassette separation pulley if it is worn (see page 1-5-3).
(4) Paper jams.	Paper is extremely curled.	Change the paper.
	Deformed guides along the paper conveying path.	Check visually and replace any deformed guides.
(5) Abnormal noise is heard.	Check if the pulleys, rollers and gears operate smoothly.	Grease the bearings and gears.
	Check if the following clutches and solenoid are installed correctly: cassette paper feed clutch.	Correct.

This page is intentionally left blank.

1-5-1 Precautions for assembly and disassembly

(1) Precautions

Before starting disassembly, press the Power key on the operation panel to off. Make sure that the Power lamp is off before turning off the main power switch. And then unplug the power cable from the wall outlet.
Turning off the main power switch before pressing the power key to off may cause damage to the equipped hard disk.
When handling PWBs (printed wiring boards), do not touch parts with bare hands.
The PWBs are susceptible to static charge.
Do not touch any PWB containing ICs with bare hands or any object prone to static charge.
When removing the hook of the connector, be sure to release the hook.
Take care not to get the cables caught.
To reassemble the parts, use the original screws. If the types and the sizes of screws are not known, refer to the PARTS LIST.

1-5-2 Paper feed section

(1) Detaching and refitting the feed roller

Follow the procedure below to replace the feed roller.

Procedure

1. Open the cassette left cover.
2. Remove the stop ring from rear side of the feed roller and slide the bush toward the inside.
3. Lift the rear of the feed roller upward. Slide the feed roller toward the rear side and remove the roller from the paper feeder.

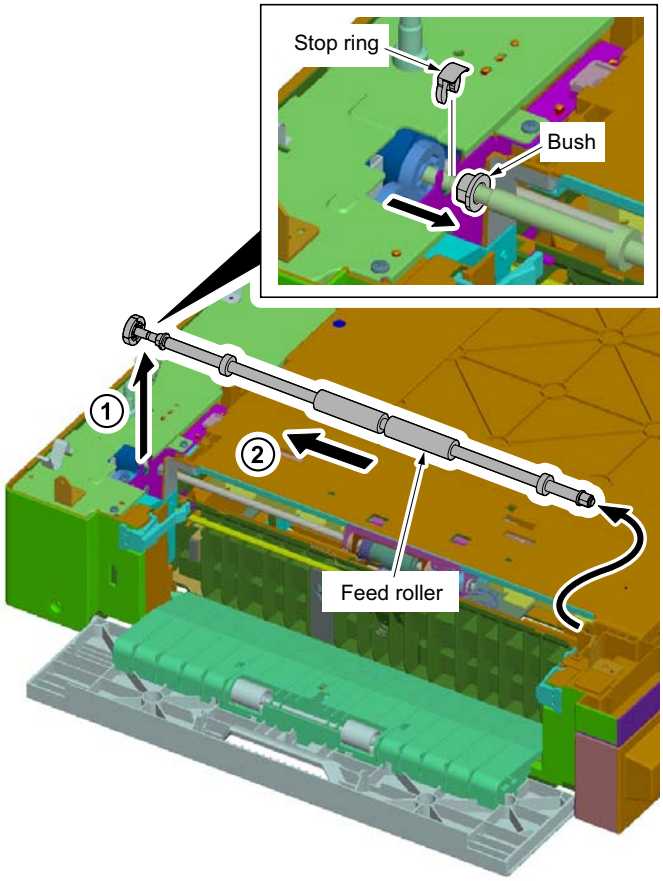


Figure 1-5-1

4. Remove the gear, spring pin and two bushes from the feed roller.
5. Replace the feed roller and refit all the removed parts.

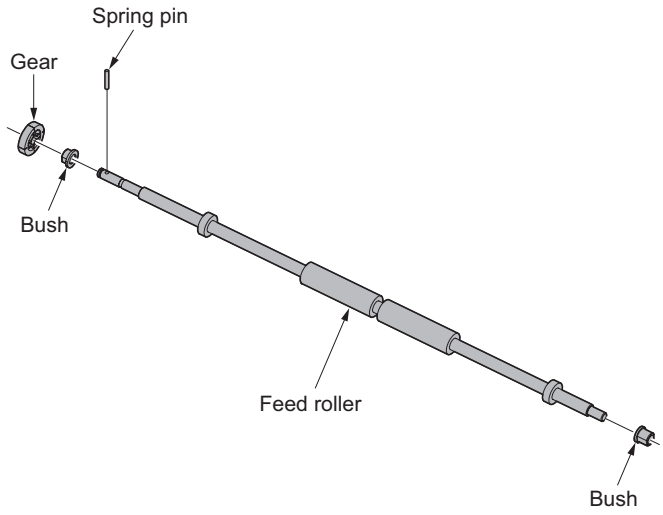


Figure 1-5-2

(2) Detaching and refitting the cassette separation pulley

Follow the procedure below to replace the cassette separation pulley.

Procedure

1. Pull out the cassette.
2. Remove the screw and remove the lower paper feed unit.

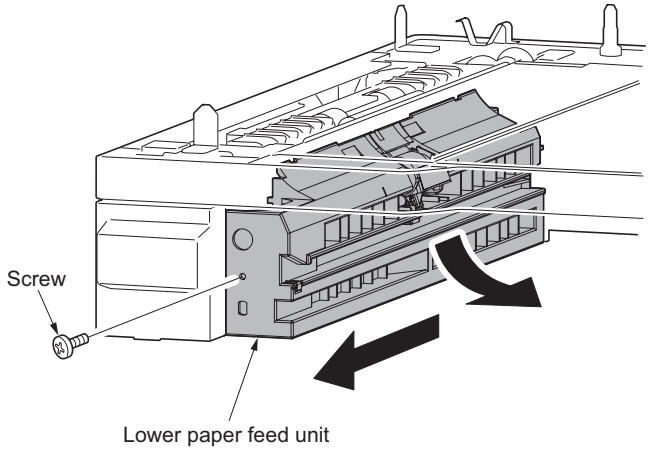


Figure 1-5-3

3. Release two hooks and remove the separation pulley unit from the lower paper feed unit.

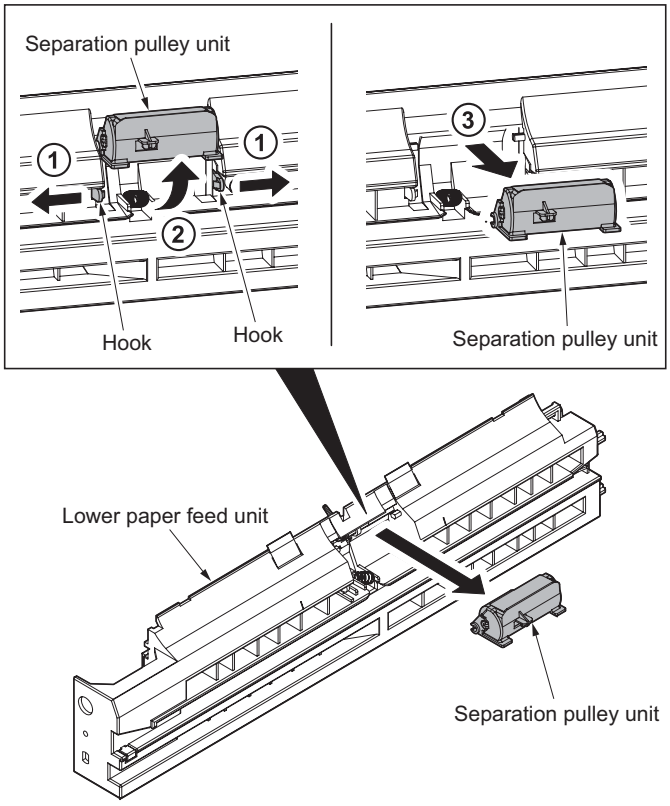


Figure 1-5-4

4. Remove the separation pulley shaft from the separation pulley unit.
5. Remove the cassette separation pulley from the separation pulley shaft.
6. Replace the cassette separation pulley and refit all the removed parts.

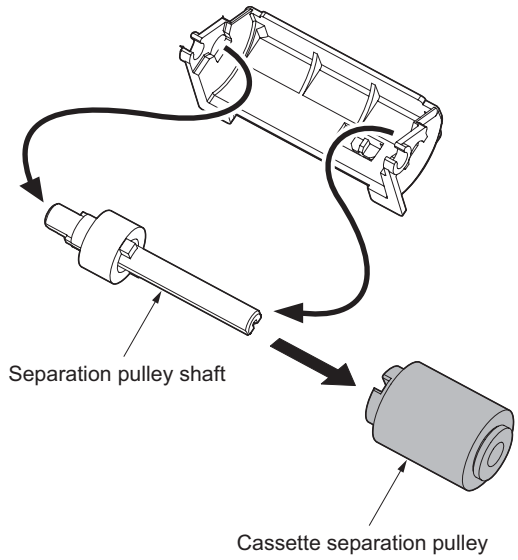


Figure 1-5-5

(3) Detaching and refitting the cassette forwarding pulley and cassette paper feed pulley

Follow the procedure below to replace the cassette forwarding pulley and cassette paper feed pulley.

Procedure

1. Remove the feed roller (see 1-5-2).
2. Remove the lower paper feed unit (see 1-5-3).
3. Remove the screw and the pin and then remove the cassette rear cover.

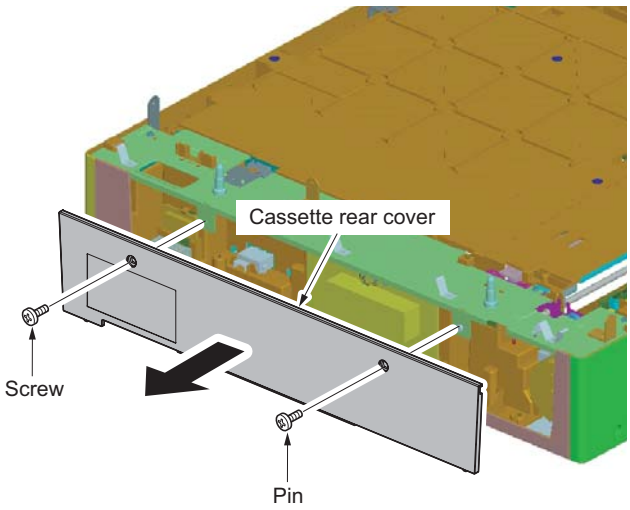


Figure 1-5-6

4. Remove the connector of the cassette paper feed clutch.
5. Remove the stop ring and remove the cassette paper feed clutch.
6. Remove the stop ring and the bush.

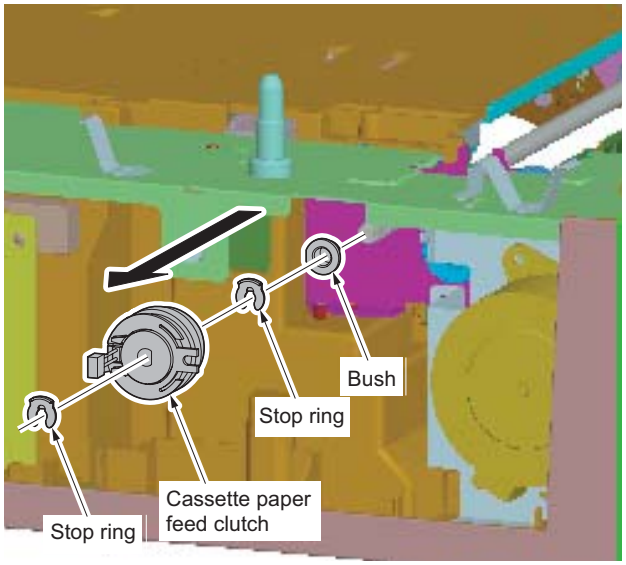


Figure 1-5-7

7. Remove the screw and remove the upper paper feed unit.

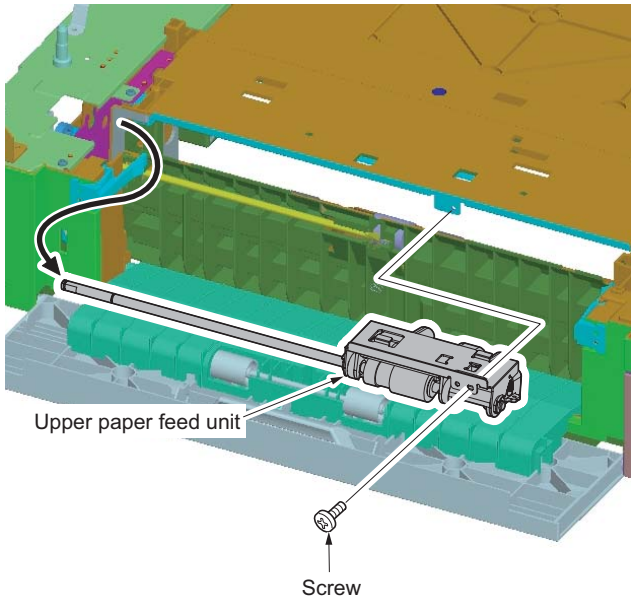


Figure 1-5-8

8. Remove the springs, stop ring and bush and then remove the shaft holder from the upper paper feed unit.

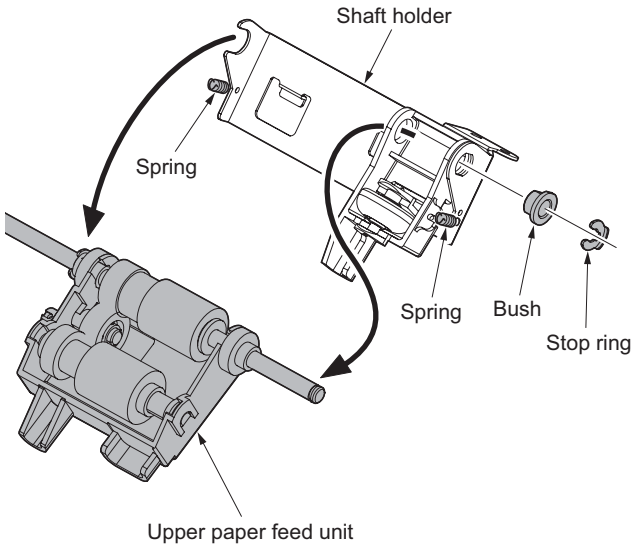


Figure 1-5-9

9. Remove the cassette forwarding pulley from the upper paper feed unit.
10. Remove the paper feed pulley shaft from the upper paper feed unit.
11. Remove the collar and the cassette paper feed pulley from the upper paper feed shaft.
12. Replace the cassette forwarding pulley and cassette paper feed pulley and refit all the removed parts.

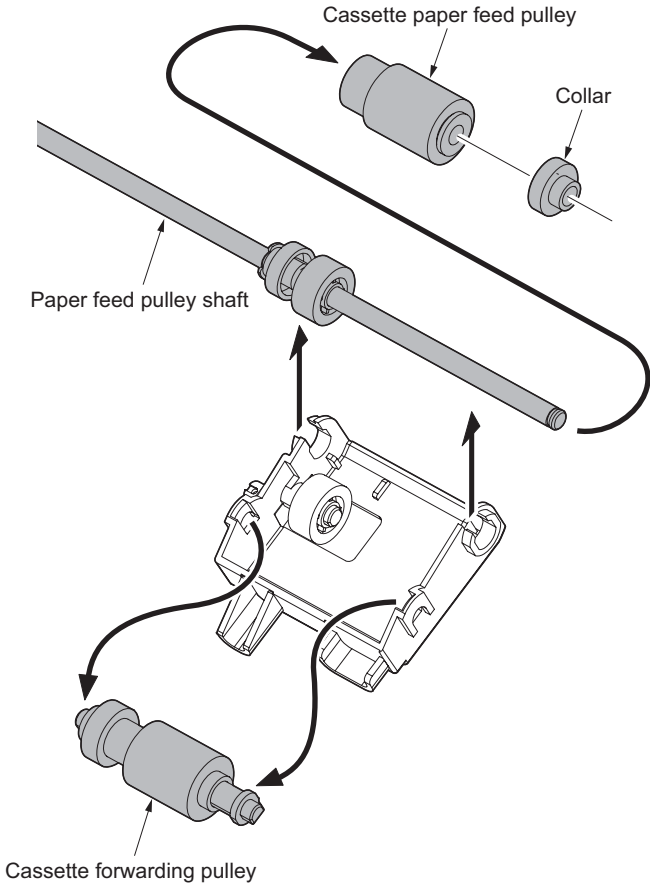


Figure 1-5-10

This page is intentionally left blank.

2-1-1 Mechanical construction

The paper feeder feeds paper from either of its cassette to the machine.
Cassette can hold up to 300 (80 g/m^2) sheets of paper. Paper is fed from the cassette by the rotation of the cassette forwarding pulley and cassette paper feed pulley. The cassette separation pulley prevents multiple sheets from being fed at one time, via the torque limiter.

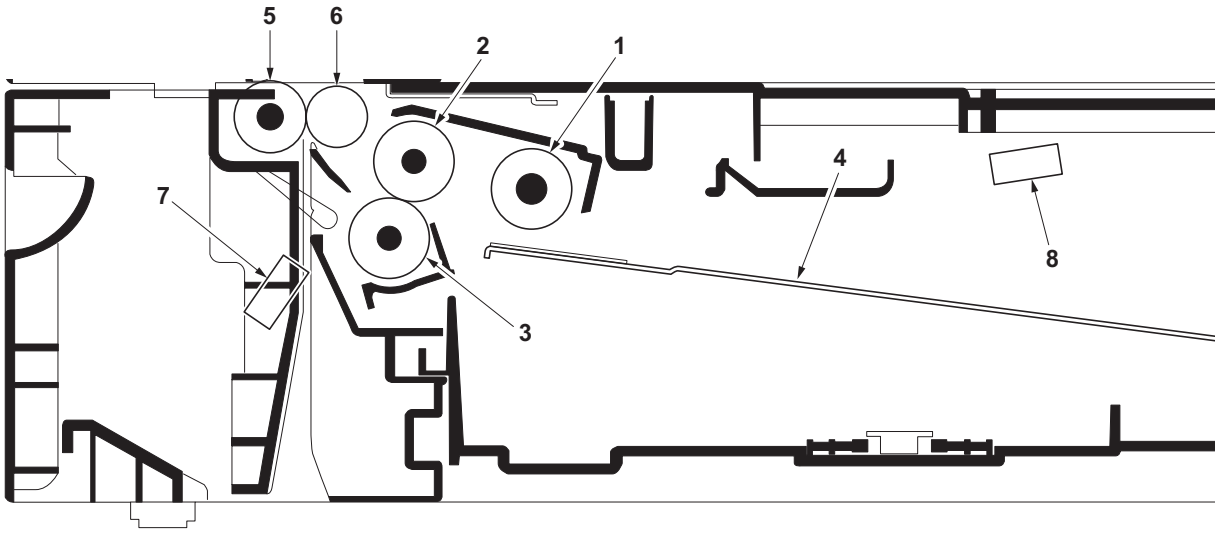


Figure 2-1-1 Paper feeder

(1) Cassette forwarding pulley
(2) Cassette paper feed pulley
(3) Cassette separation pulley
(4) Cassette operation plate
(5) Feed pulley
(6) Feed roller
(7) Cassette feed switch (CFSW)
(8) Cassette paper switch (CPSW)

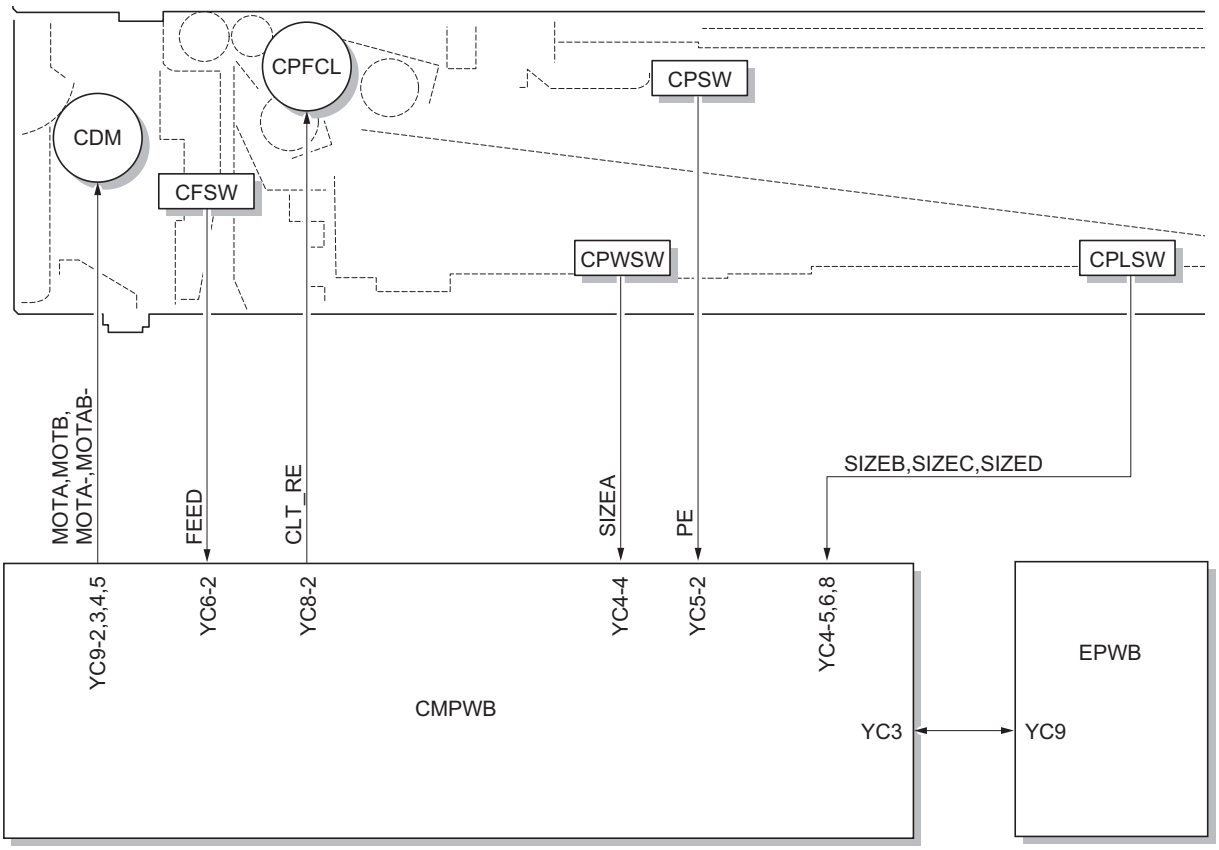


Figure 2-1-2 Paper feeder block diagram

2-2-1 Electrical parts layout

(1) PWBs

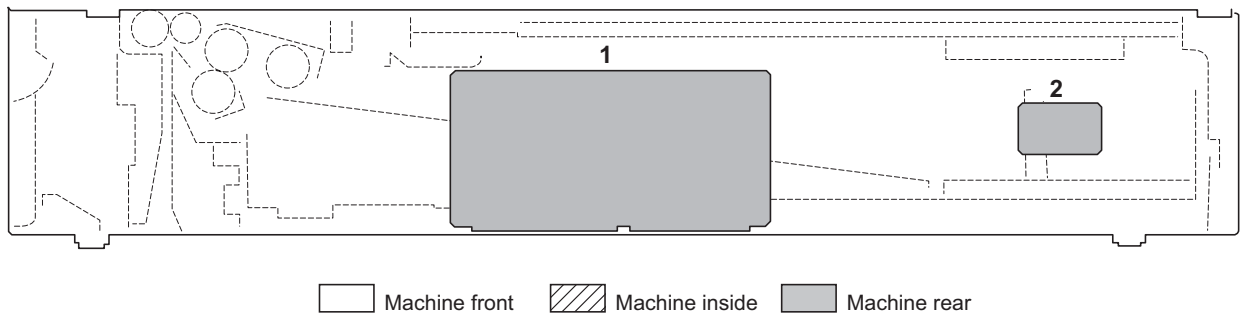


Figure 2-2-1 PWBs

1. Cassette main PWB (CMPWB)..... Controls electrical components of the paper feeder.
2. Cassette heater PWB (CHPWB)..... Relays the cassette heater power.

(2) Switches and sensors

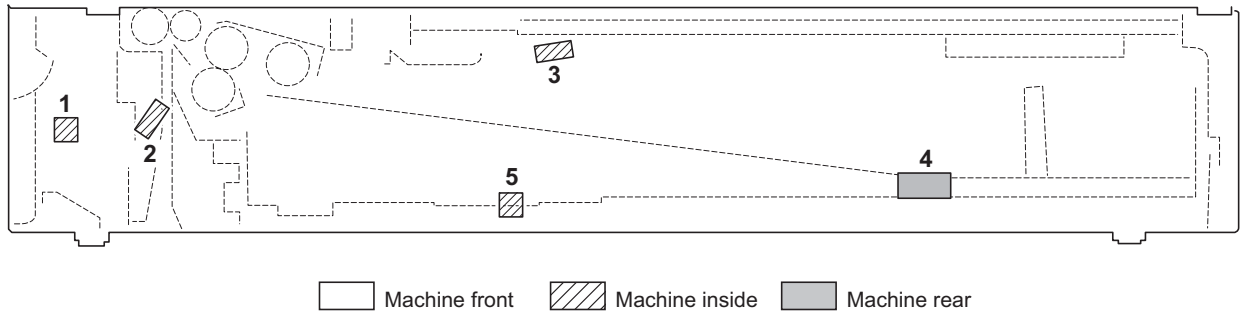


Figure 2-2-2 Switches and sensors

1. Cassette left cover safety switch (CLCSSW) ..... Breaks the safety circuit when the cassette left cover is opened.
2. Cassette feed switch (CFSW)..... Detects a paper misfeed.
3. Cassette paper switch (CPSW) ..... Detects the presence of paper in the cassette.
4. Cassette paper size length switch (CPLSW)..... Detects the length of paper in the cassette.
5. Cassette paper size width switch (CPWSW) ..... Detects the width of paper in the cassette.

(3) Others

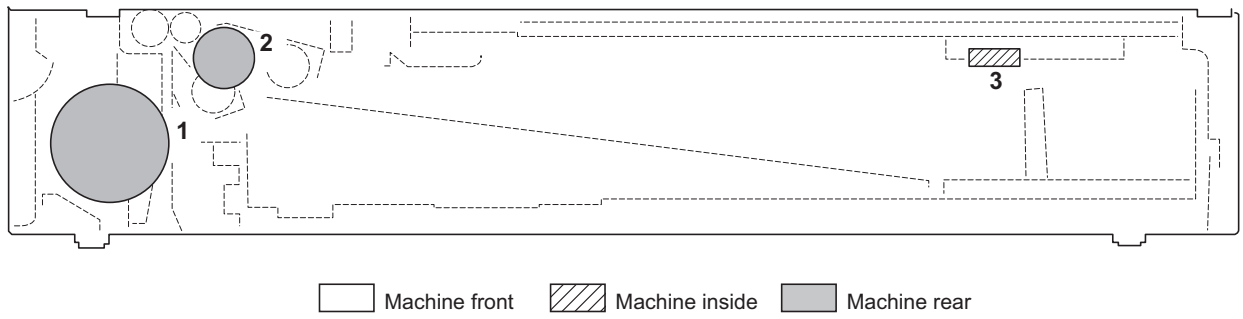


Figure 2-2-3 Others

1. Cassette drive motor (CDM) ..... Drives the paper feeder.
2. Cassette paper feed clutch (CPFCL) ..... Primary paper feed from the cassette.
3. Cassette heater (CH)* ..... Dehumidifies the cassette section.

*: Option

This page is intentionally left blank.

2-3-1 Cassette main PWB

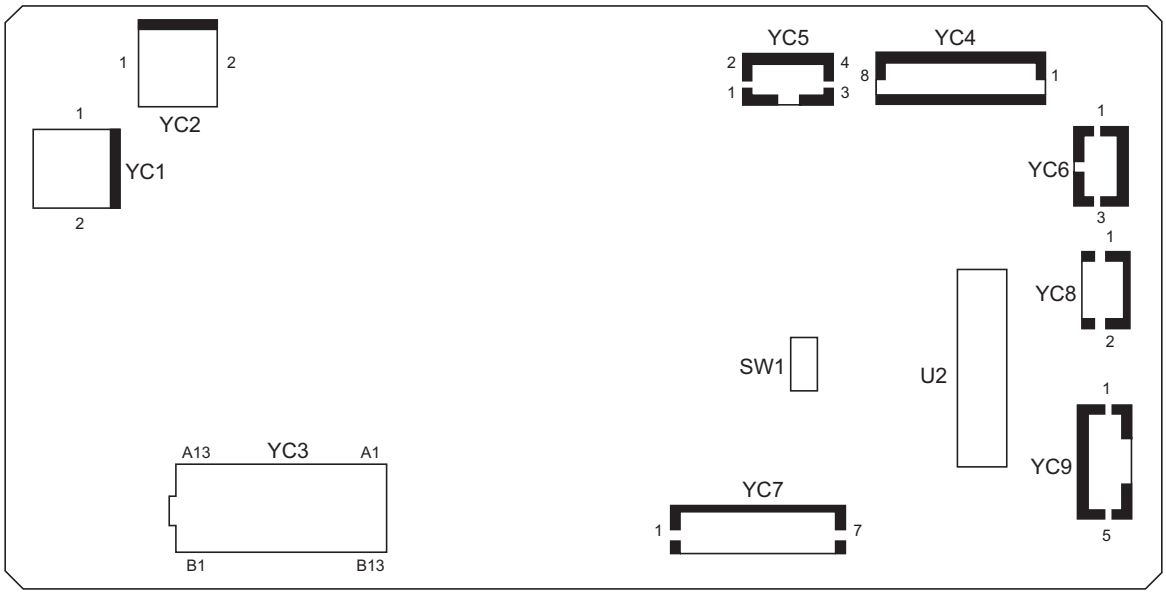


Figure 2-3-1 Cassette main PWB silk-screen diagram

Connector	Pin No.	Signal	I/O	Voltage	Description
YC1	1	24V	O	24 V DC	24 V DC power output to paper feeder
Connected to the paper feeder	2	PGND	-	-	Ground
YC2	1	+24V1	I	24 V DC	24 V DC power input from EPWB
Connected to the engine PWB	2	PGND	-	-	Ground
YC3	A1	5V	-	-	Not used
Connected to the engine PWB and paper feeder	A2	SGND	-	-	Not used
	A3	5V	I	5 V DC	5 V DC power input from EPWB
	A4	SGND	-	-	Ground
	A5	5V	I	5 V DC	5 V DC power input from EPWB
	A6	SGND	-	-	Ground
	A7	SDI	I	0/5 V DC (pulse)	Paper feeder serial communication data signal
	A8	SDO	O	Analog	Paper feeder serial communication data signal
	A9	SCLK	I	0/5 V DC (pulse)	Paper feeder clock signal
	A10	SEL0	I	0/5 V DC	Paper feeder select signal 0
	A11	SEL1	I	0/5 V DC	Paper feeder select signal 1
	A12	SEL2	I	0/5 V DC	Paper feeder select signal 2
	A13	RDY	O	0/5 V DC	Paper feeder ready signal
	B1	RDY	I	0/5 V DC	Paper feeder ready signal
	B2	SEL2	O	0/5 V DC	Paper feeder select signal 2
	B3	SEL1	O	0/5 V DC	Paper feeder select signal 1
	B4	SEL0	O	0/5 V DC	Paper feeder select signal 0
	B5	SCLK	O	0/5 V DC (pulse)	Paper feeder clock signal
	B6	SDO	I	0/5 V DC (pulse)	Paper feeder serial communication data signal
	B7	SDI	O	0/5 V DC (pulse)	Paper feeder serial communication data signal
	B8	SGND	-	-	Ground
	B9	5V	O	5 V DC	5 V DC power output to paper feeder
	B10	SGND	-	-	Ground
	B11	5V	O	5 V DC	5 V DC power output to paper feeder
	B12	SGND	-	-	Not used
	B13	5V	-	-	Not used
YC4	1	SGND	-	-	Ground
Connected to the cassette left cover safety switch, cassette paper size width switch and cassette paper size length switch	2	COVOPN	O	0/24 V DC	CLCSSW: On/Off
	3	SGND	-	-	Ground
	4	SIZEA	I	0/5 V DC	CPWSW: On/Off
	5	SIZEB	I	0/5 V DC	CPLSW: On/Off
	6	SIZEC	I	0/5 V DC	CPLSW: On/Off
	7	SGND	-	-	Ground
	8	SIZED	I	0/5 V DC	CPLSW: On/Off

Connector	Pin No.	Signal	I/O	Voltage	Description
YC5	1	SGND	-	-	Ground
Connected to the cassette paper switch	2	PE	I	0/5 V DC	CPSW: On/Off
	3	5V	O	5 V DC	5 V DC power output to CPSW
	4	NC	-	-	Not used
YC6	1	SGND	-	-	Ground
Connected to the cassette feed switch	2	FEED	I	0/5 V DC	CFSW: On/Off
	3	5V	O	5 V DC	5 V DC power output to CFSW
YC8	1	24V	O	24 V DC	24 V DC power output to CPFCL
Connected to the cassette paper feed clutch	2	CLT_RE	O	0/24 V DC	CPFCL: On/Off
YC9	1	24V	O	24 V DC	24 V DC power output to CDM
Connected to the cassette drive motor	2	MOTA	O	0/24 V DC (pulse)	CDM drive control signal
	3	MOTB	O	0/24 V DC (pulse)	CDM drive control signal
	4	MOTA-	O	0/24 V DC (pulse)	CDM drive control signal
	5	MOTB-	O	0/24 V DC (pulse)	CDM drive control signal

This page is intentionally left blank.

List of maintenance parts

Maintenance part name		Part No.	Alternative part No.	Fig. No.	Ref. No.
Name used in service manual	Name used in parts list				
Cassette paper feed pulley	PULLEY,PAPER FEED	2AR07220	-	1	2
Cassette separation pulley	PULLEY,SEPARATION	2AR07230	-	2	4
Cassette forwarding pulley	PULLEY,LEADING FEED	2AR07240	-	1	3
Feed roller	PARTS ROLLER FEED	303HW06021	3HW06021	1	22
Feed pulley	PULLEY FEED	2BL16080	-	2	5

Periodic maintenance procedures

Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Paper feed section	Cassette paper feed pulley	Check or replace	User call	Clean it with alcohol if it is dirty. Replace it if any problem such as flawed or worn state is found.	P.1-5-5
	Cassette separation pulley	Check or replace	User call	Clean it with alcohol if it is dirty. Replace it if any problem such as flawed or worn state is found.	P.1-5-3
	Cassette forwarding pulley	Check or replace	User call	Clean it with alcohol if it is dirty. Replace it if any problem such as flawed or worn state is found.	P.1-5-5
	Feed roller	Check or replace	User call	Clean it with alcohol if it is dirty. Replace it if any problem such as flawed or worn state is found.	P.1-5-2
	Feed pulley	Check or clean	User call	Clean it with alcohol if it is dirty.	

Wiring diagram